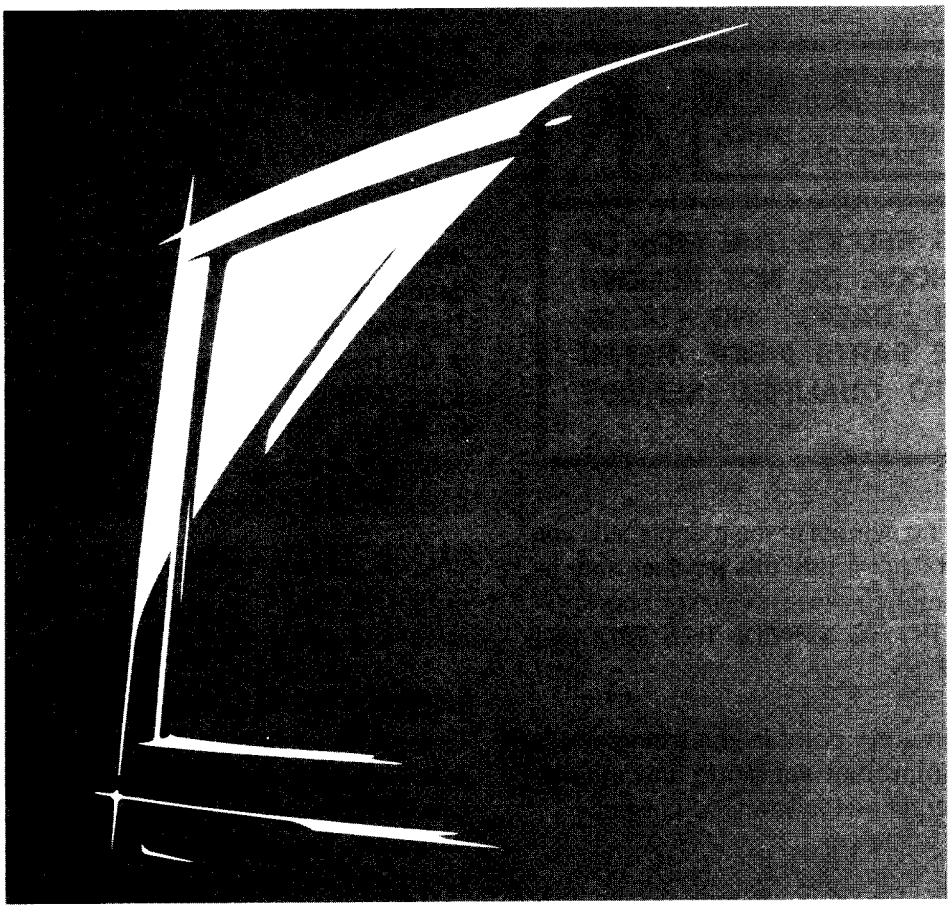
TOSHIBA

Color Television

OWNER'S MANUAL

CF35D50



Dear Customer

Congratulations! You have purchased one of the finest Color TV's on the market!
This manual will help you use the many exciting and useful features to make your TV viewing more enjoyable than ever before.
Before operating your TV set, please read all these safety and operating instructions completely and then retain for future reference.

Customer's Record

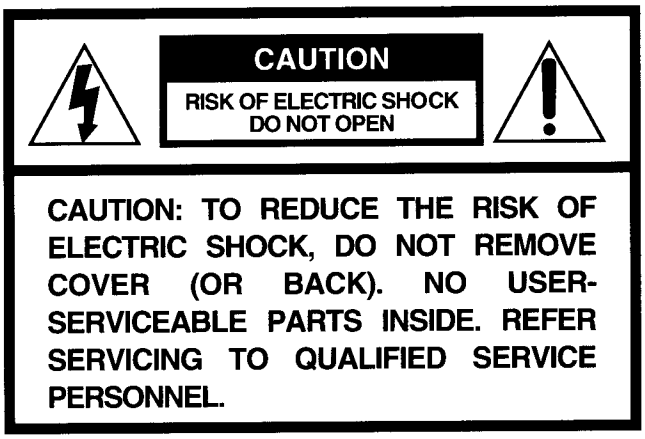
You will find the model number and serial number on the back of your TV set.
Record these numbers in the spaces provided below.
Refer to them whenever you call upon your TOSHIBA dealer regarding this product.

Model Number _____

Serial Number _____

SAFETY PRECAUTIONS

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning symbol in the triangle tells you that the voltage inside this product may be strong enough to cause an electric shock.
DO NOT TRY TO SERVICE THIS PRODUCT YOURSELF.

The exclamation point in the triangle tells you that important operating and maintenance instructions follow this symbol.

CAUTIONS:
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE PRONGS CAN BE FULLY INSERTED INTO THE OUTLET TO PREVENT ANY EXPOSURE OF THE PRONGS ON THE POLARIZED PLUG.

Avoid displaying stationary images on your TV screen for extended periods of time. Stationary patterns generated by PIP display, computer displays, video games, stock market reports etc. can become permanently engrained on the picture tube. This damage is not protected by your warranty as it is the result of misuse. Should you wish to use your TOSHIBA Television to display still images, it is always advisable to reduce brightness and contrast settings. Never leave a PIP display, computer display or video game unattended.

This TV set may be used only with TOSHIBA stand model ST3502. Use with other stands may result in instability causing possible injury.

NOTE TO CATV SYSTEM INSTALLER:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

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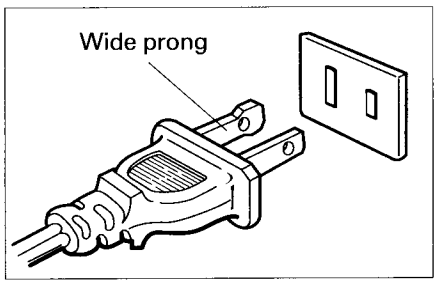
INSTALLING YOUR TV SET

WARNING:
TO AVOID PERSONAL INJURY
- Do not place the TV on an uneven floor or an unstable stand.
- Do not stand or climb on the TV.
- Do not put a VCR or any heavy object on top of the TV.

DO NOT:
- Place your TV set in a room where direct lighting strikes the screen.
- Place your TV set too close to a wall, in a confined area or in a very warm location.
- Change the plug's safety prong.

DO:
- Use soft and indirect lighting.
- Sit at least 6 feet away from the set.
- Provide normal air circulation for reliable long life.
- Plug into an electrical outlet with standard house power (120 volt AC, 60 Hz).

CAUTION:
As a safety feature, the plug has one prong wider than the other. It will fit only one way into a standard electrical outlet. If the plug will not fit into the outlet, try turning it around. If the plug will not fit either way, the outlet is probably old and non-standard. You will need to have a new outlet installed by an electrician.
DO NOT CHANGE THE SAFETY FEATURE OF THE PLUG.

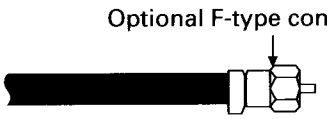


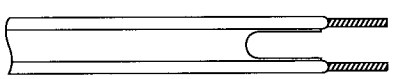
ANTENNA/CABLE TV GENERAL INFORMATION

You can use either an indoor or outdoor antenna to receive VHF and/or UHF channels.
Channels 2-13 are VHF channels, and channels 14-69 are UHF channels.
We recommend using an outdoor antenna for better picture quality.
You can receive Cable TV by connecting a cable supplied by your local cable company.
Cable TV delivers both VHF and UHF channels and other channels not available from your antenna.

TYPES OF ANTENNA CABLES
Shown below are two basic types of antenna cables. Signals from a home antenna may be conducted through either type. Cable TV signals will always be conducted through 75 ohm coaxial cable.

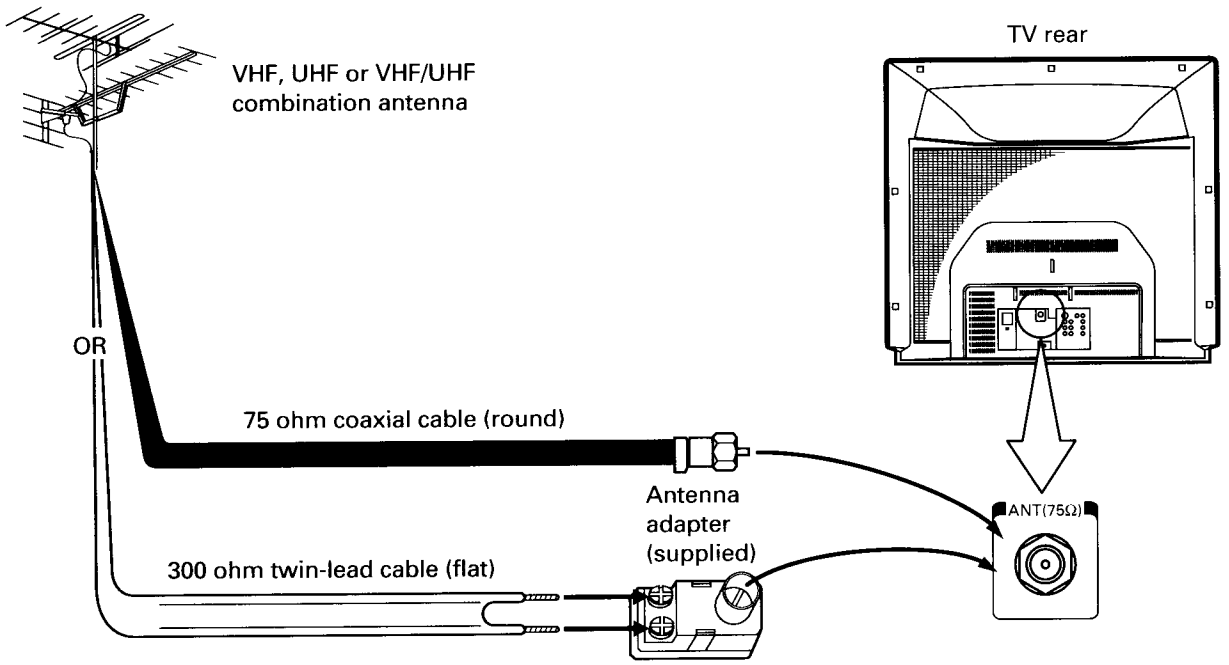
1. A 75 ohm system is generally a round cable with F-type connectors that can easily be attached to a terminal without tools.
2. A 300 ohm system is a flat "twin-lead" cable that can be attached to a terminal through an antenna adapter supplied as an accessory.



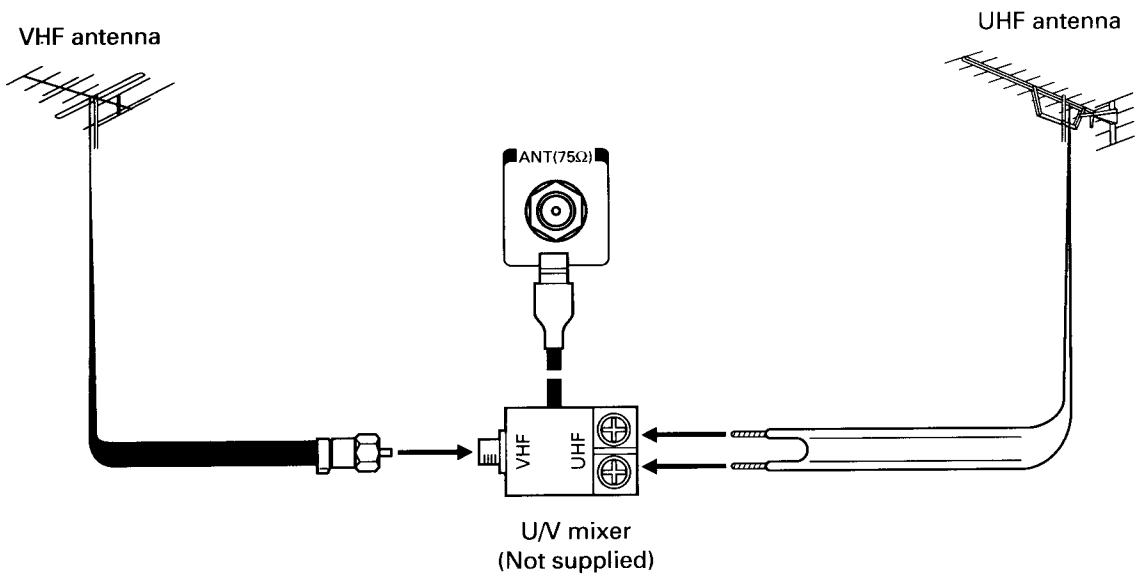


HOME ANTENNA CONNECTION

Connecting a single lead-in cable



Connecting both VHF and UHF lead-in cables



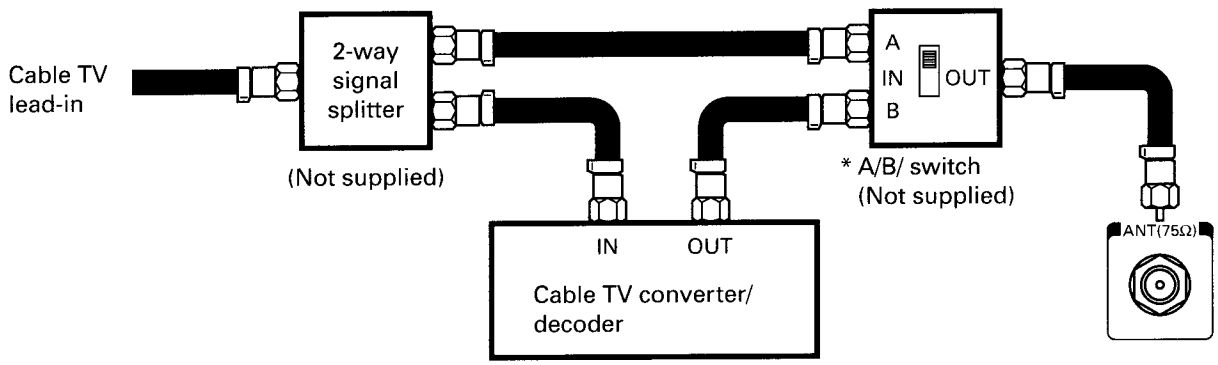
CABLE TV CONNECTIONS

Generally, the incoming cable for a Cable TV system can be connected directly to the TV antenna terminal just like a home antenna connection. Simply attach it to the ANT (75Ω) terminal. You will be able to receive unscrambled cable channels.

Cable without a decoder box (unscrambled channels)

Some cable companies offer "premium pay channels". Since the signals of these premium pay channels are scrambled, a cable TV converter/decoder is generally provided to the subscriber by the cable TV company. This decoder box is necessary for normal viewing of the scrambled channels. For more specific instructions on installing cable TV, consult your cable TV company.

Cable with a decoder box (unscrambled and scrambled channels)



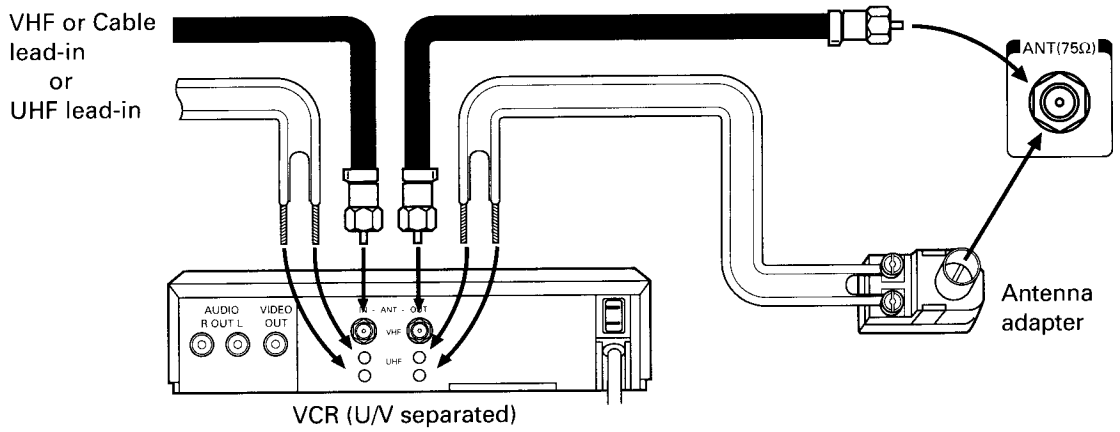
* "A" position on the A/B switch allows you to select unscrambled channels using the TV's channel keys. "B" position allows you to select scrambled channels via the converter/decoder box using the converter's channel keys. Place your TV on channel 3 or 4 to match the converter's output channel.

Notes:

- The descrambler device may or may not be a part of cable converter.
- Since cable systems vary, you may wish to consult your local cable company for additional information.

ANTENNA/CABLE TV AND VCR CONNECTIONS

Antenna/Cable connection via VCR (simplified method)

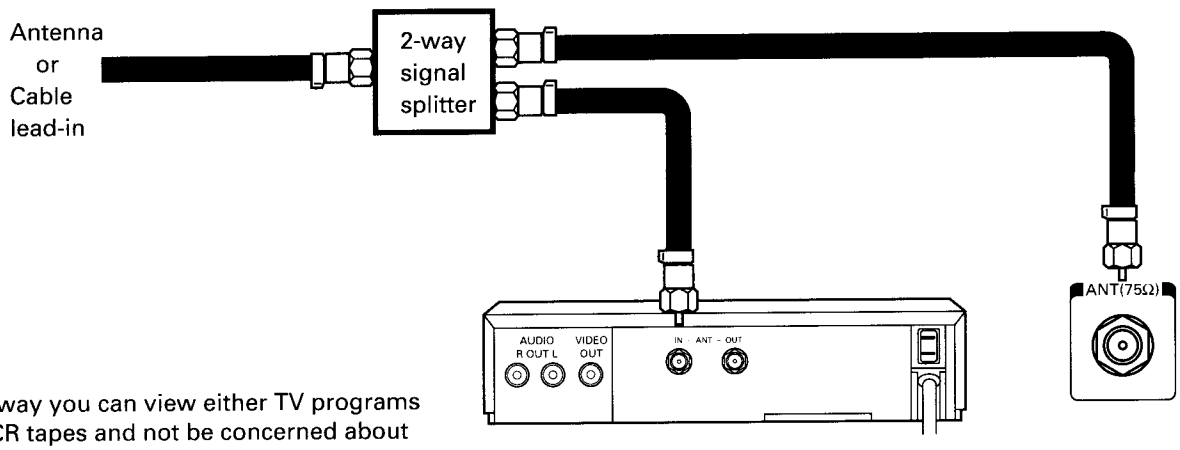


VCR (U/V separated)

Notes:

- On many VCR's, playing tapes causes the VCR's TV/VCR switching to disconnect the antenna signals from the TV. If you cannot select a certain channel, try pressing the TV/VCR button on the Remote Control.
- If you connect both VHF and UHF lead-in cables, use an optional U/V mixer. See page 5.

Using a 2-way signal splitter



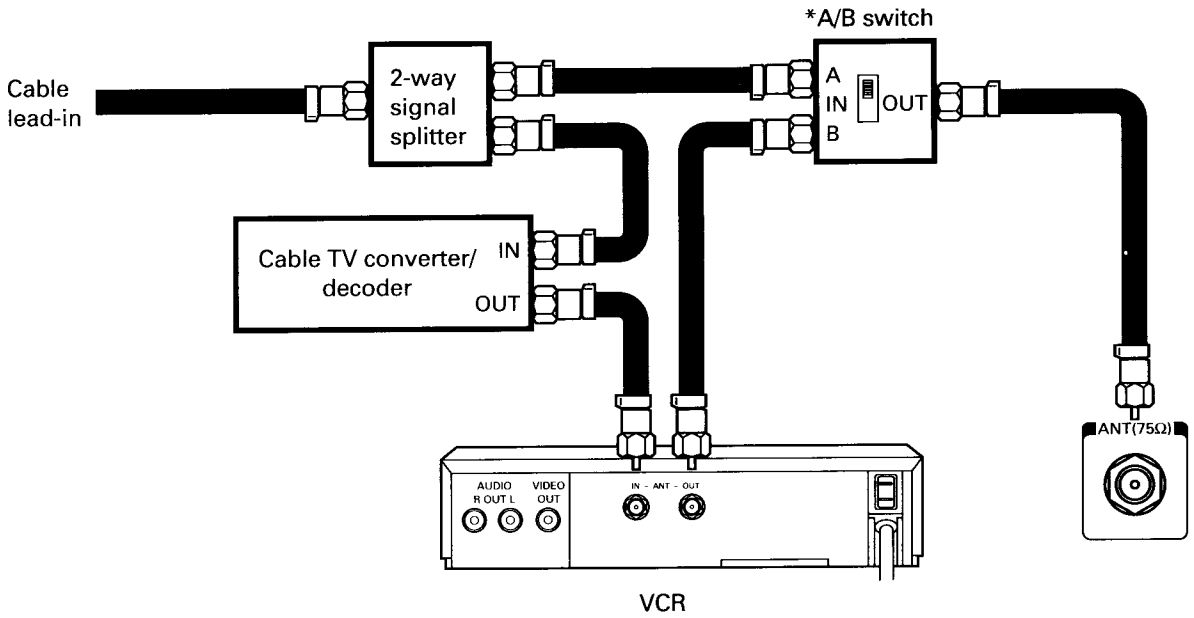
This way you can view either TV programs or VCR tapes and not be concerned about the position of the VCR's TV/VCR switch.

VCR

Note: When connected either way, the VIDEO/AUDIO connections from the VCR to the TV are required for PIP (Picture in Picture) viewing and for (stereo) play-back from VCR's. See page 41 for connection details.

ANTENNA/CABLE TV AND VCR CONNECTIONS (Continued)

Cable with a converter/decoder box

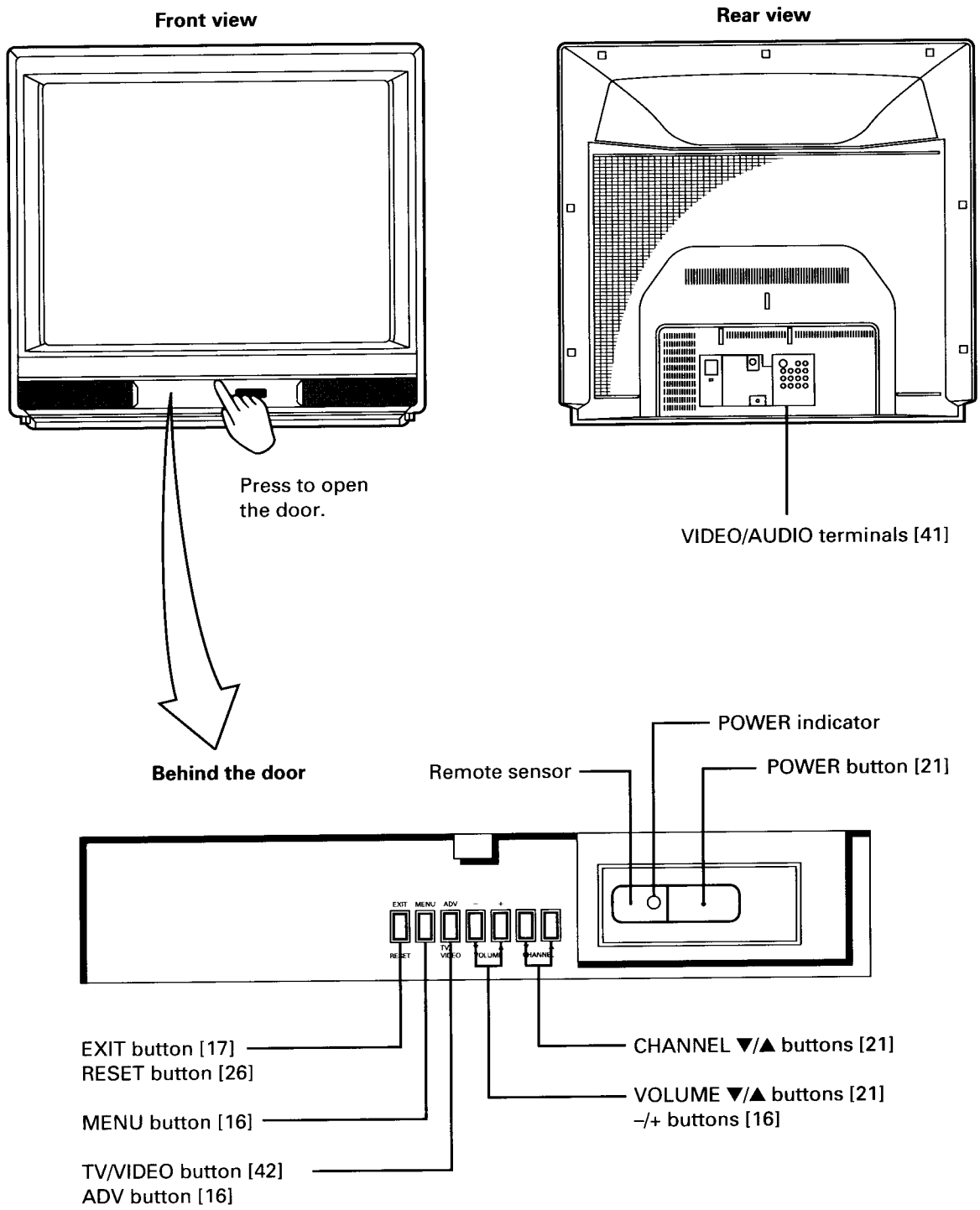


*"A" position on the A/B switch allows you to select unscrambled channels using the TV's channel keys.
"B" position on the A/B switch allows you to select scrambled channels via the cable TV converter/decoder using the converter's channel keys. Place your TV and VCR on channel 3 or 4 to match the converter's output channel.

Note: When connected this way, the VIDEO/AUDIO connections from the VCR to the TV are required for PIP (Picture in Picture) viewing and for stereo playback from stereo VCR's. See page 41 for connection details.

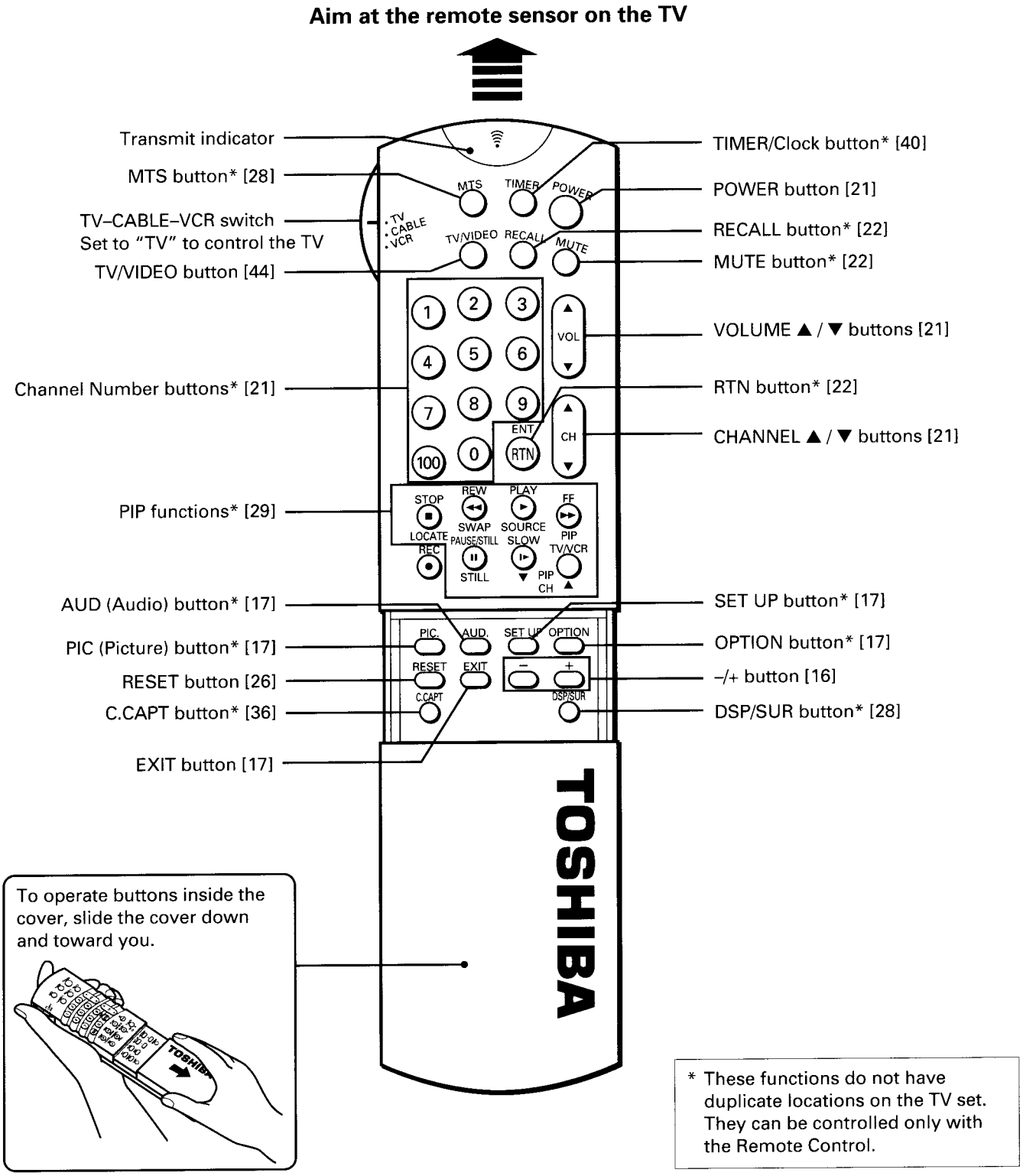
LOCATION OF CONTROLS (TV set)

For specific use of each control, consult the corresponding page numbers in brackets.



LOCATION OF CONTROLS (Remote Control)

Only the buttons that are used to operate the TV set are described here.
For details on the use of each control, refer to pages in brackets.



* These functions do not have duplicate locations on the TV set. They can be controlled only with the Remote Control.

BEFORE USING THE REMOTE CONTROL

INTRODUCTIONS

With this Remote Control, you can operate your TV and most models of remote-controlled VCR's and Cable TV Converters even if they are different brands. However, this Remote Control must be programmed to control other brands of VCR's and/or Converters. If you will be using your TV set with a TOSHIBA VCR, your remote has already been preprogrammed for you.

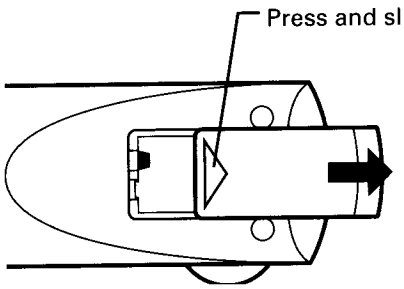
- Before attempting to operate your Remote Control, install the batteries according to the section "INSTALLING AND REPLACING BATTERIES" shown below.
- For more detailed instructions, see the section "PROGRAMMING THE REMOTE CONTROL" on the page 13.

Notes:

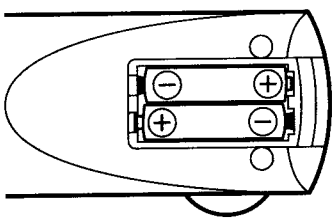
- After installing new batteries, the Remote Control will set itself to the codes for TOSHIBA's TV and VCR. If you are using the Remote Control to operate equipment that uses different codes, it will have to be reprogrammed for those codes.
- This Remote Control may have functions not available on the original remote control.
- These functions may or may not operate your VCR or Cable TV Converter. Refer to the owner's manuals supplied with the equipments to see which functions are available.
- The remote control supplied with your VCR or Cable TV Converter may have keys not duplicated on this Remote Control. If these functions are desired, the original remote will have to be used.

INSTALLING AND REPLACING BATTERIES

1 Place the Remote Control with the face down. Press down on the ridged area of the battery cover and slide it off.



2 Place two "AA" size batteries, matching the + and – signs on each battery to the + and – signs of the battery compartment.



3 Replace the battery cover until the lock snaps.

TIPS FOR BEST OPERATION

- For optimum performance, aim the Remote Control directly at the TV from a distance no more than 23 ft (7m) and be sure there is no obstruction between the Remote Control and the TV.
- If your Remote Control does not always adjust the TV as you wish, you probably need to replace the batteries.
- Remove dead batteries immediately to prevent battery acid from leaking into the battery compartment.
- If you do not intend to use the Remote Control for a long period, remove the batteries.

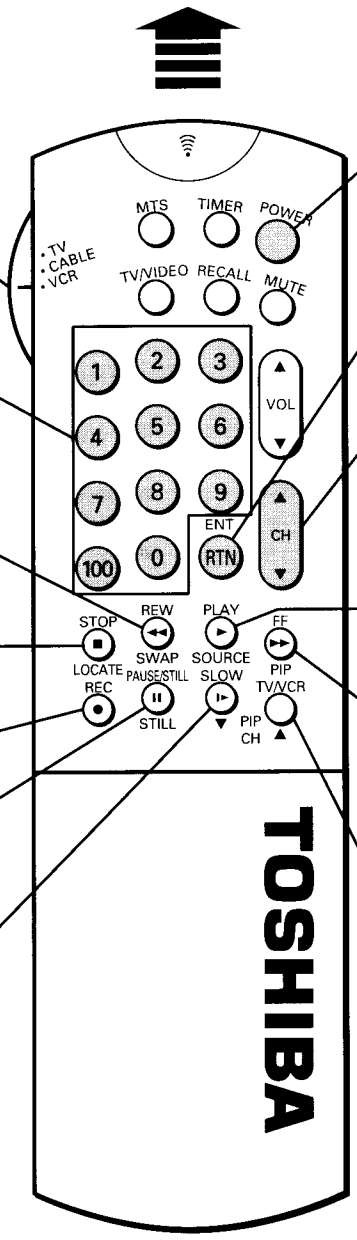
CAUTION:

- Do not throw your batteries into a fire. Dispose of your batteries in a designated disposal area.
- Do not combine used old batteries with new ones.
- Do not mix battery types.

USING THE REMOTE WITH VCR OR CABLE TV CONVERTER

- To control TOSHIBA VCR, first set the TV-CABLE-VCR switch to "VCR" position. The buttons shown below will then control the VCR. The rest of the buttons operate the TV as usual.
  If you have another brand of VCR, you can probably program your Remote to control it.
  Details are on page 13.
- To control a cable TV converter, this Remote Control must be programmed to recognize the brand of your converter.
  See page 13.
  Set the TV-CABLE-VCR switch to "CABLE" position whenever you control the cable TV converter.

Aim at the VCR or cable TV converter



TV–CABLE–VCR switch
"VCR": To control VCR
"CABLE": To control cable TV converter

Channel number buttons
Press the numbers desired for direct access.

REWind button
Press to rewind tapes.
In playback mode, press to view picture moving rapidly in reverse.

STOP button
Press to stop the tape.

RECord button
Press to start a recording.

PAUSE/STILL button
Press to freeze the picture during playback or recording.
Press again to release.

SLOW button
Press to view a slow-motion picture in the playback mode.

POWER button
Press the button to turn the VCR (or converter) on.
Press again to turn off.

RTN button
See page 22 .

CHANNEL ▲ / ▼ buttons
Press ▲ button to select next higher channel.
Press ▼ button to select next lower channel.

PLAY button
Press to begin tape playback.

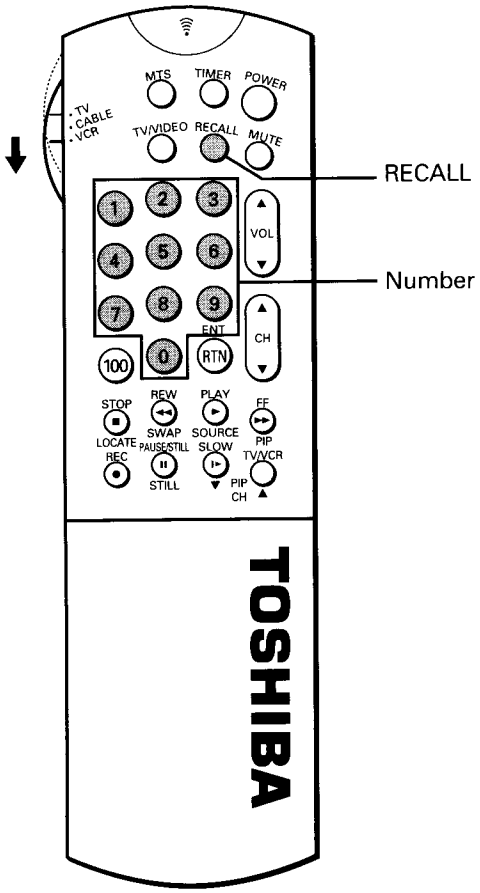
FF button
Press to rapidly advance the tape. In playback mode, press to view the picture moving rapidly in forward direction.

TV/VCR button
Press to the VCR mode to view the playback of a tape or to monitor a recording.
Press to the TV mode to view one program while recording another program.

The buttons marked with ◍ are usable to control the cable TV converter

PROGRAMMING THE REMOTE CONTROL

- This Remote Control is preprogrammed to operate TOSHIBA VCR's.
- To use VCR's other than Toshiba models (or Cable converter), perform the following procedures before operating.



TO CONTROL OTHER BRANDS OF VCR'S AND CABLE TV CONVERTERS

1 Refer to the "***VCR code table***" (or "***Cable TV converter code table***") on pages 14 and 15 to find the code number that corresponds to the brand name of your VCR (or your converter).

If more than one number is listed, try each one separately until you find the one that works.

2 Set the TV-CABLE-VCR switch to VCR (or CABLE).

3 Hold down **RECALL** while pressing the **Number** buttons for the three digit code number for your brand of VCR (or converter).
The transmit indicator lights up for 1 second when the programming is completed.

When an operation error has occurred, the indicator blinks.
Press **RECALL** again to reset.

4 Point the Remote Control at the VCR (or at the converter) and press POWER to test the code number.
— **If the right number was entered,** the VCR should turn on.
— **If the VCR does not respond to the Remote Control,** repeat steps 1 to 4 with another code number.

Notes:
- You have to reprogram the Remote Control when you change its batteries.
- Some newer VCR's are capable of working on either of two remote codes. These VCR's have a switch labeled "VCR1/VCR2".
If your VCR has this kind of switch, and does not respond to all the code numbers for your VCR brand name, set the switch to another position ("VCR1" or "VCR2") and reprogram the Remote Control.

For future reference, write the code you used.

VCR CODE: _____

CABLE CODE: _____

PROGRAMMING THE REMOTE CONTROL (Continued)

- The code numbers listed below are the newest ones at the time of printing. New code numbers may or may not have been added since printing.

VCR code table

BRAND NAME	CODE NUMBER
Aiko	297
Aiwa	019
Akai	060,068,080,125,261
Alba	039,228,297
Amstrad	019
Anitech	091
ASA	056,100
Audiovox	056
Baird	123
Bell & Howell	123
Broksonic	140,203,230
Bush	091,228,297
Canon	054
Capehart	039
Carver	100
CCE	091,297
CGE	019
Cimline	091
Condor	039
Craig	066,259
Crown	297
Curtis Mathes	054
Daewoo	039,064,065,297
Dansai	091
Daytron	039
De Graaf	061
Decca	019,100
Dual	060
Dumont	019,100,123,124
Dynatech	019
Electronic	019
Emerson	019,021,056,080,140,203,227,228,230,231,313
ESC	297
Ferguson	060
Fidelity	019
Finlandia	100,123,129
Finlux	019,061,100,123,124
First line	062,091
Fisher	065,066,073,085,123
Frontech	039
Funai	019
GE	054,079,084
GEC	100
General	071
Go Video	251,298
Goldstar	056,057
Goodmans	019,039,056,081,091,297
Gradiente	019
Graetz	060,123
Granada	065,100,123
Grundig	100
Harman/Kardon	057
Hem	091
Hinari	091,227
Hitachi	019,060,061,084,124
Imperial	019
Interfunk	100
ITT	060,065,123,125
JCL	054
Jensen	060
JVC	027,060,086
Kendo	125
Kenwood	057,060,065,086
Lloyd	019
Loewe	056
Loewe opta	100
Logik	019,259
Luxor	062,065,125
LXI	056
Magnavox	019,054,100,129,168
Manesth	064,091
Marantz	054,057,081,100
Marta	056
Matsui	227,228
MEI	054
Memorex	019,054,056,058,065,066,067,123
MGA	062,080
Minolta	061,124
Mitsubishi	062,080,086,100,192,233,261
MTC	019,259
Multitech	019,091
Murphy	019
NEC	057,059,060,069,086
Neckermann	100
Nikko	056
Noblex	259
Nokia	060,065,123,125,259
Nordmende	060
Optonica	067,081
Orion	140,227,228
Osaki	019,056,091
Otto Versand	100
Pallidium	091
Panasonic	054,096,244
Penney	054,056,057,059,061,259
Pentax	061,084,124
Perdio	019
Philco	054
Philips	054,081,100,129
Phonola	100
Pilot	056
Pioneer	086,100
Portland	039
Proline	019
Pulsar	058
Pye	100
Quartz	065
Quasar	054,115
Quelle	100
Radiola	100
RCA	054,061,084,096,124,168,221
RCA Unified	079
Realistic	019,054,056,065,066,067,081,085,123,259
Rex	060
Ricoh	053
Roadstar	056,091,259
Runco	058
Saba	060
Saisho	227,228
Salora	062,065,125
Samsung	064,259
Sansui	060,086
Sanyo	065,066,123,259
SBR	100
Scaub Lorenz	019,060
Schneider	019,091,100,129
Scott	064,140,203,229,231
Sears	054,056,061,065,066,073,085,123,124
SEI	100
Sentra	039
Sharp	076,081
Shintom	091
Siemens	056,123
Sinudyne	100

Cable TV converter code table

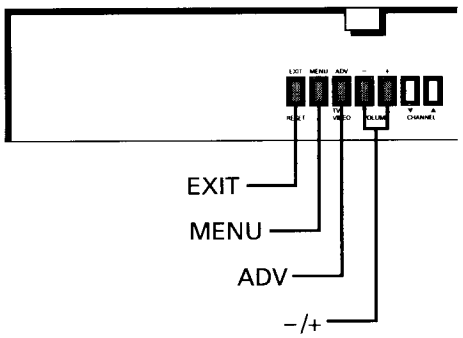
BRAND NAME	CODE NUMBER
Sony	051,052,053,054
STS	061
Sunstar	019
Sylvania	054,062,100,129
Symphonic	019
Tashiko	019
Tatung	019,060,100
Teac	019,060
Technics	054
Teknika	019,054,056,071
Telefunken	060,206
Tenosal	091
Tensai	019
Thomson	060
Thorn	060
Toshiba	060,062,064,085, 229,231,385
Totevision	056,259
Triumph	227
Unitech	259
Universum	019,056,068,100, 125
Vector Research	057,059
Victor	027,060,086
Video Concepts	059,080
Videosonic	259
Wards	019,054,061,066, 067,081,09 1,168,231,259
Yamaha	057,060
Yoko	259
Zenith	052,053,058

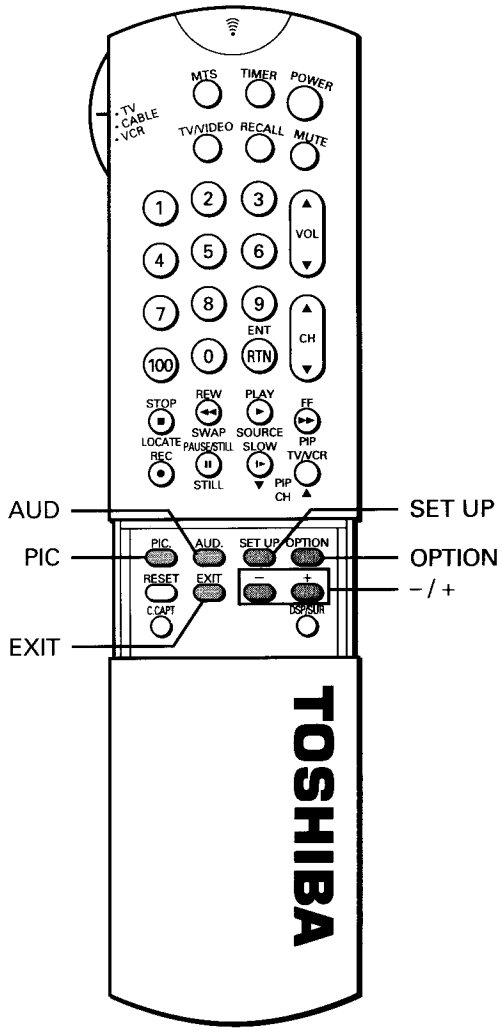
BRAND NAME	CODE NUMBER
ABC	026,030,032,036
Archer	058,172
Century	172
Citizen	172
Colour Voice	044,050
Comtronics	059,079
Eastern	021
Garrard	172
Gemini	034,089
General Instrument	030
Hamlin	028,039,278,292
Hitachi	030
Jasco	172
Jerrold	022,030,031,033, 034,043,045
Macom	052
Magnavox	046
Memorex	019
Movie Time	175
NSC	089,175
Oak	026,038
Panasonic	040
Paragon	019
Philips	044,046,047,048, 049,050,079
Pioneer	163
Pulsar	019
PVP Stereo Visual Matrix	022
RCA	040
Regal	039,278,292
Regency	021
Rembrandt	089
Runco	029
Samsung	059,163
Scientific Atlanta	025,027,036,296
Signal	034,059
Signature	030
SL Marx	059
Sprucer	040
Standard Components	174
Starcom	022,034
Stargate	034,059
STS	175
Tocom	031,032,078
Toshiba	019

BRAND NAME	CODE NUMBER
Unika	172
United Artists	026
United Cable	022
Universal	058,096,172,210
Viewstar	046,079
Zenith	019

MENU FUNCTION (General Instructions)

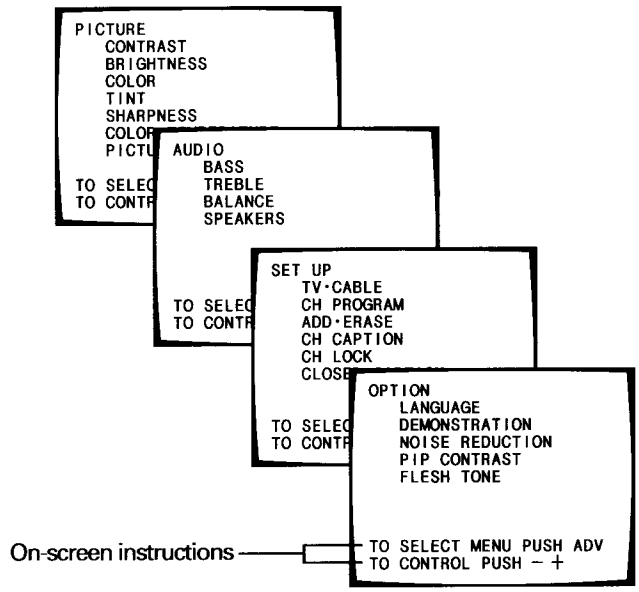
We suggest you familiarize yourself with the procedure before using the Menu function.
To adjust any TV feature, the use of the Menu function is required. The adjustments that can be made to the TV appear on the screen.





MENU BUTTON (on TV)

Each time you press **MENU**, the PICTURE, AUDIO, SET UP or OPTION menu on-screen display is selected in order, then press **ADV**.



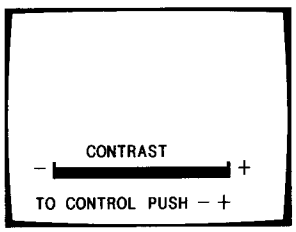
ADV BUTTON (on TV)

Use this **ADV** after you have pressed **MENU** to select the function you want to adjust.
Each time you press **ADV**, the function to be adjusted will be selected in order.
The selected function will be displayed in magenta.

–/+ BUTTONS (on TV and on Remote)

Use these **–/+** after you have pressed **ADV** or any of the four menu buttons **(PIC, AUD, SET UP or OPTION)**.

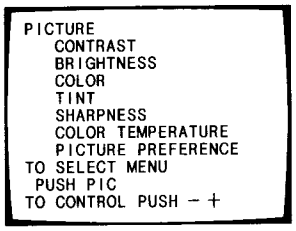
Example: CONTRAST adjustment mode display



Pressing + increases the picture contrast.
Pressing – decreases the picture contrast.

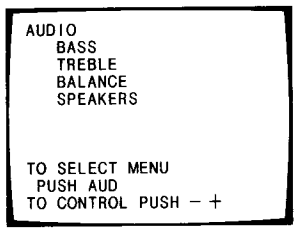
PIC (Picture) BUTTON (on Remote)

Press **PIC** repeatedly until the PICTURE menu function you want to adjust is selected.
The selected function will be displayed in magenta, then press –/+ to adjust the setting.
Details for each function begin on page 24.



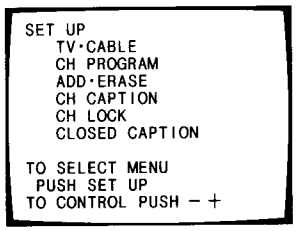
AUD (Audio) BUTTON (on Remote)

Press **AUD** repeatedly until the AUDIO menu function you want to adjust is selected.
The selected function will be displayed in magenta, then press –/+ to adjust the setting.
Details for each function begin on page 26.



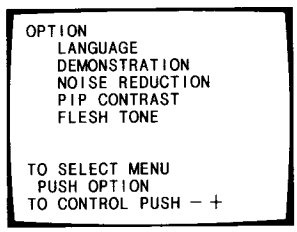
SET UP BUTTON (on Remote)

Press **SET UP** repeatedly until the SET UP menu function you want to adjust is selected.
The selected function will be displayed in magenta, then press –/+ to adjust the setting.
Details for each function begin on page 19.



OPTION BUTTON (on Remote)

Press **OPTION** repeatedly until the OPTION menu function you want to adjust is selected.
The selected function will be displayed in magenta, then press –/+ to adjust the setting.
Details for each function begin on pages 31 and 38.



EXIT BUTTON (on TV and on Remote)

The above four menu displays will automatically disappear from the screen if no control has been operated for about 15 seconds, and all other menu displays also disappear after about 6 seconds.
If you want to clear the screen of all on-screen displays instantly, press **EXIT**.

Notes:

- The ADV button on the TV will function as the ANT/VIDEO button when no menu display is on the screen.
- The –/+ buttons on the TV will function as the VOLUME ▼/▲ buttons when no menu display is on the screen.
- The EXIT button on the TV will function as the RESET button when no menu display is on the screen.

TV CHANNELS

This TV will receive the following TV signals:

1. TV: Off the air TV signals. (VHF channels 2 thru 13 and UHF channels 14 thru 69)
2. STD CABLE: Standard (or IRC: Incremental Related Carrier) cable TV signals.
3. HRC CABLE: Harmonic Related Carrier cable TV signals.
4. IRC CABLE: Incremental Related Carrier cable TV signals.

For each of these systems, your TV has exact frequencies built into it to ensure precise tuning. For precise tuning, the TV•CABLE function must be set to match your TV or CABLE system. (See page 19.) The following chart shows channels available in each system and how your TV displays them. When you connect your TV to a cable TV system and if you are not sure what system they are using, proceed with the following section "HOW TO FIND YOUR TYPE OF CABLE SYSTEM" or consult your local cable company to check if your system is STD, HRC or IRC.

HOW TO FIND YOUR TYPE OF CABLE SYSTEM

1 Select the "STD CABLE" mode following the instructions on page 19.

2 Select various channels and confirm whether the channel will lock immediately with perfect picture. If the channels seem to take a few seconds to lock in, your cable system may be one of the other cable systems. In this case, continue with the following steps.

3 Select the "HRC CABLE" mode and try above procedure again.

4 If you are having problems with only channel 5 or 6, you may have an IRC system so change the mode to the "IRC CABLE".

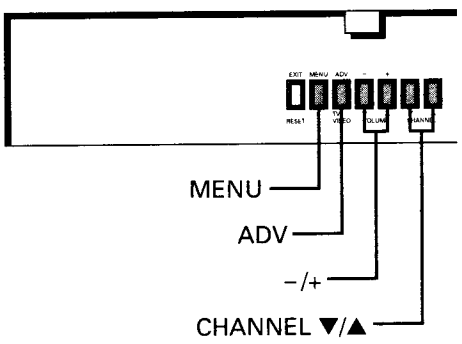
TV/CABLE CHANNEL REFERENCE CHART

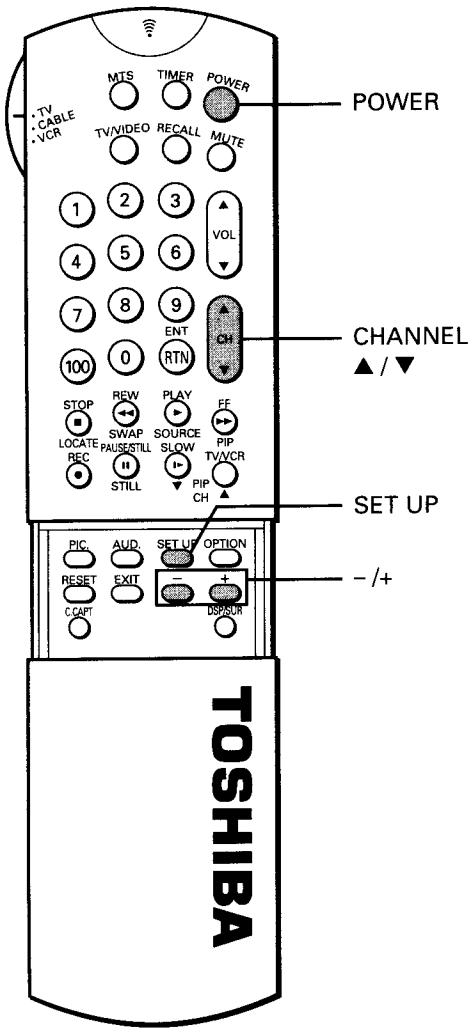
Number on this TV	Corresponding channel number							
	TV off the air	Cable TV STD/HRC/IRC						
1	–	A-8	14	14	A	70		70
2	2	2	15	15	B	71		71
3	3	3	⋮	⋮	⋮	⋮		⋮
4	4	4	35	35	V	93		93
5	5	5 (A-7)	36	36	W	94		94
6	6	6 (A-6)	37	37	AA	95		A-5
7	7	7	38	38	BB	96		A-4
8	8	8	⋮	⋮	⋮	97	Not used	A-3
9	9	9	61	61	YY	98		A-2
10	10	10	62	62	ZZ	99		A-1
11	11	11	63	63	AAA	100		100
12	12	12	64	64	BBB	101		101
13	13	13	65	65	65	⋮		⋮
			66	66	66	124		124
			67	67	67	125		125
			68	68	68			
			69	69	69			

Note: The above chart is typical of many cable system channel allocations. However, the numbering system may differ in your area. If in doubt, consult your local cable company.

PROGRAMMING CHANNEL MEMORY

The channel memory is the list of TV channel numbers your TV will stop on when you press the CHANNEL ▲ or ▼ button. **First, use the TV•CABLE and CHANNEL PROGRAM functions to preset all active channels in your area automatically.** If necessary, arrange the preset channels with the ADD/ERASE functions so that you can tune into only desired channels.

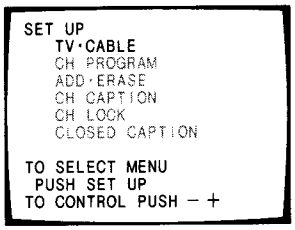




TV•CABLE FUNCTION

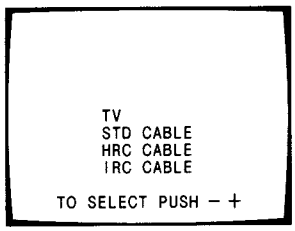
1 Press **POWER** to turn on the TV.

2 Press **SET UP** on the Remote Control (or **MENU** on the TV) to display the SET UP menu on the screen.



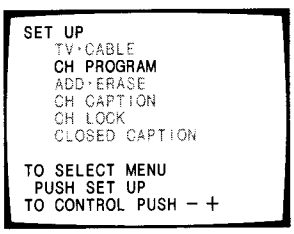
3 Press **SET UP** repeatedly (or **ADV** on the TV) until "TV/CABLE" is displayed in magenta.

4 Press – or + until the mode that corresponds to your TV signal system is displayed in magenta.
Each time you press the button, the TV, STD CABLE, HRC CABLE or IRC CABLE mode will be selected in order.

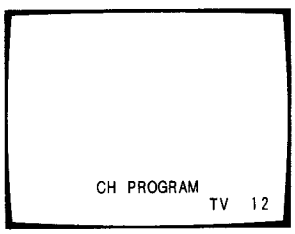


CH PROGRAM FUNCTION

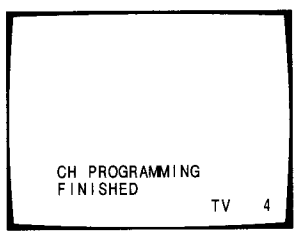
1 Select "CH PROGRAM" following steps 2 and 3 above.



2 Press – or + to start channel programming.
The TV will automatically cycle through all the TV or CABLE channels on the mode selected by the TV•CABLE function and store active channels in the channel memory.

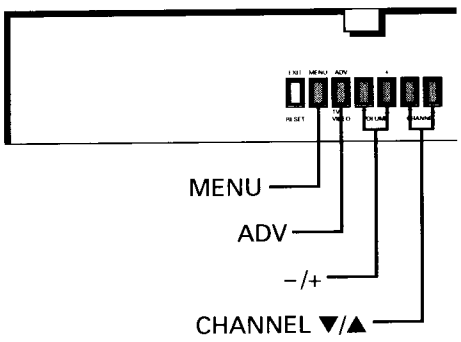


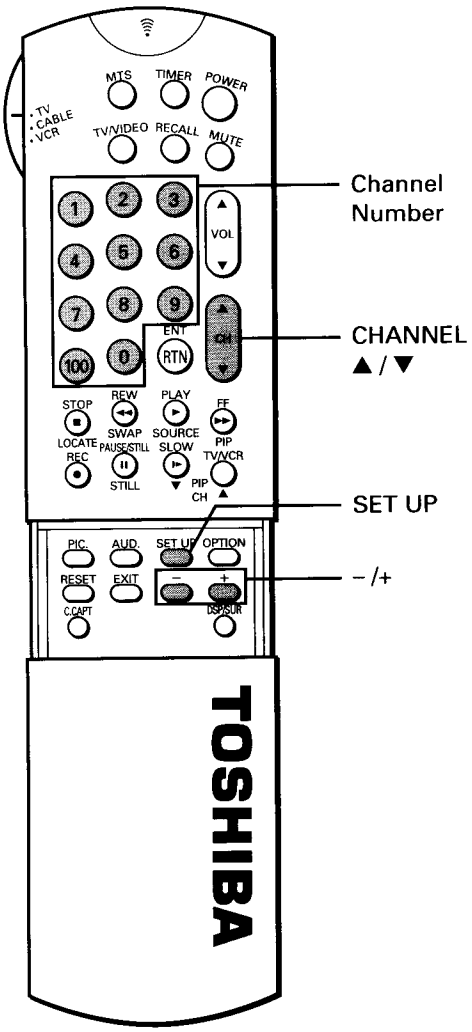
3 When channel programming is complete, you will see the message at the right.



4 Press **CHANNEL** ▲ or ▼ to make sure the channel programming has been done properly.

PROGRAMMING CHANNEL MEMORY (Continued)

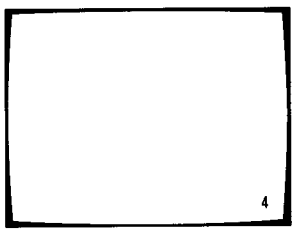




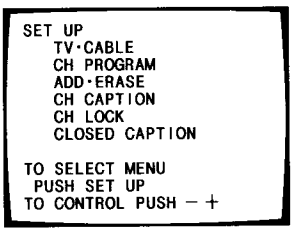
ADD•ERASE FUNCTION

First follow the instructions "CH PROGRAM FUNCTION" and then add or erase individual channels as desired.

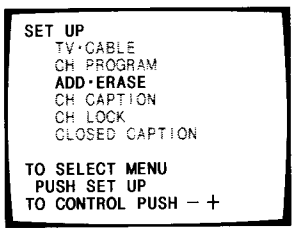
1 Select the channel you want to erase using the **CHANNEL** ▲ or ▼ button, or select the channel you want to add using the **Channel Number** buttons.



2 Press **SET UP** on the Remote Control (or **MENU** on the TV) to display the SET UP menu on the screen.



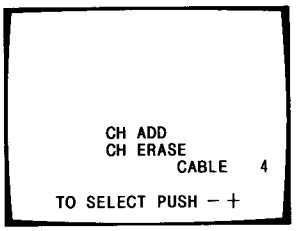
3 Press **SET UP** repeatedly or (**ADV** on the TV) until "ADD/ERASE" is displayed in magenta.



4 Press – or + :

To erase the channel
Press the button until "CH ERASE" is displayed in magenta indicating that the channel has been erased from the memory.

To add the channel
Press the button until "CH ADD" is displayed in magenta indicating that the channel has been memorized.

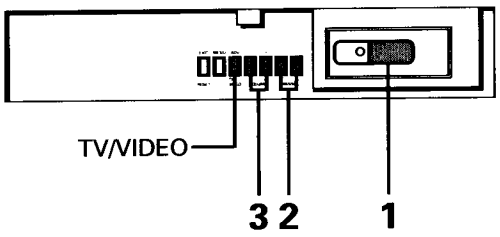


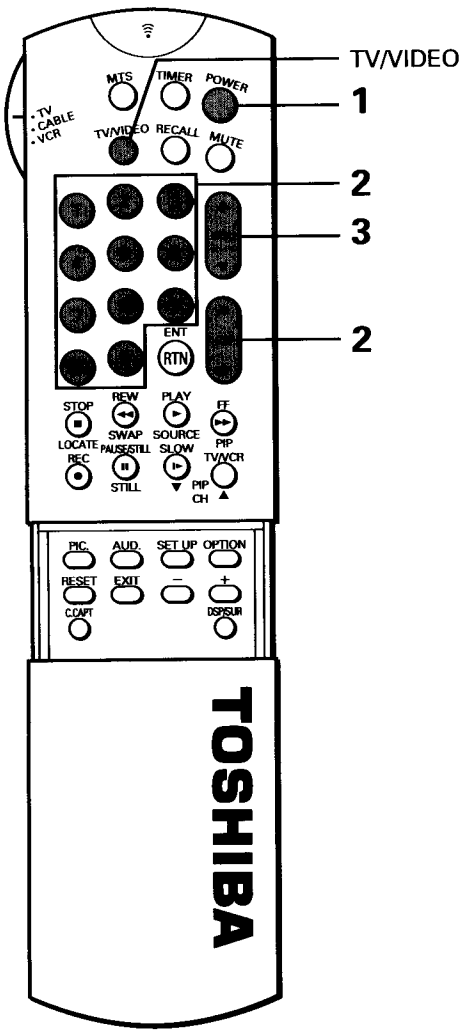
5 Repeat steps 1 to 4 for other channels.

You have now completed the channel programming.

WATCHING TV PROGRAMS

- First set the TV-CABLE-VCR switch to "TV" position.

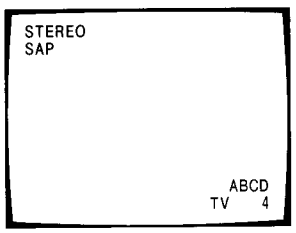




Note:
The VOLUME ▲/▼ buttons on the TV function as the menu +/– buttons while any of the menu displays (PICTURE, AUDIO, SET UP or OPTION) are on the screen.

1 Press **POWER** to turn on the TV.
The following on-screen information will be displayed for a few seconds.

- Channel number or VIDEO mode selected.
- Channel caption (if previously preset).
- Stereo or SAP audio status.



To turn off the TV, press **POWER** again.

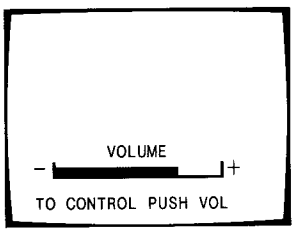
2 Select a channel in one of the following two ways.

- **To scan the memorized channels in numerical sequence**
  Press **CHANNEL ▲** to select the next higher channel.
  Press **CHANNEL ▼** to select the next lower channel.
  Press the button again to select the next memorized channels.

- **To select a channel directly**
  Press the **Channel Number** buttons (0-9 and 100).
  To select channel 4, press "4" (or press "0","4").
  To select channel 38, press "3","8".
  To select channel 125, press "100","2","5" in sequence.

  If you cannot select certain channels, either TV (off the air) or CABLE channels
  Check if the TV•CABLE function is properly set. See page 19.

3 Press **VOLUME ▲/▼** to adjust the volume.
To increase the volume, press ▲.
To decrease the volume, press ▼.



Watching Video Input

The TV/VIDEO button is used to view the signals coming from other devices like VCR's or Video Disc Players connected to this TV.
Details are on page 42.

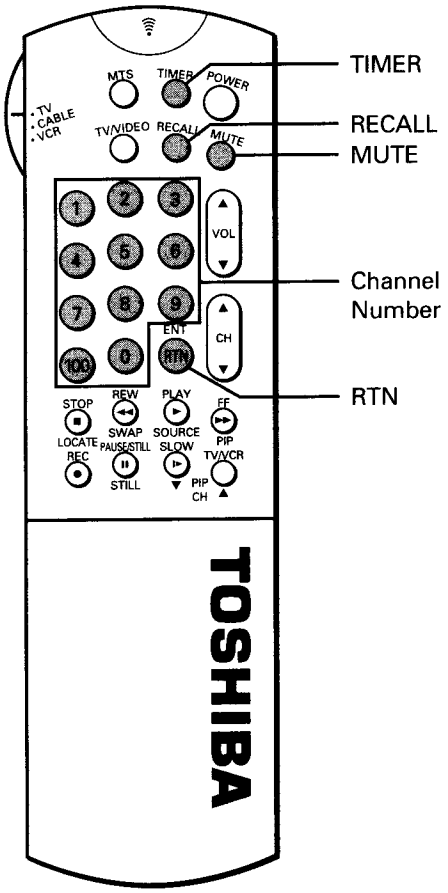
Auto-Power-Off

If a vacant channel is tuned or TV broadcast for a day is finished, the TV will automatically turn off after about 15 minutes.
This feature does not operate in the VIDEO mode.

Last Mode Memory

If the power is cut off while you are viewing the TV and the power is resupplied, the TV is turned on automatically by the ***Last Mode Memory*** feature. If the power is going to be off or when you leave home for a long time, remove the power plug from the wall outlet to prevent the TV from turning on in your absence.

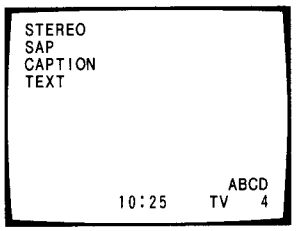
CONVENIENT REMOTE FUNCTIONS



TO DISPLAY ON-SCREEN INFORMATION

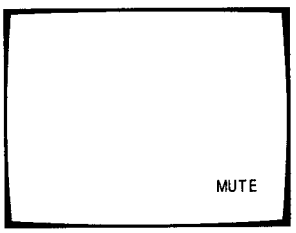
Press **RECALL** to display the following on-screen information.

- Channel number or VIDEO mode selected.
- Channel caption (if previously preset).
- Time (if clock has been set).
- Closed Caption or Text program status.
- Stereo or SAP audio status.



TO MUTE THE SOUND

Press **MUTE** to mute the sound immediately without affecting the picture. The word "MUTE" will be displayed on the screen as shown. This is useful during telephone calls or other interruptions.
To restore the sound, press **MUTE** again.



TO CHANGE QUICKLY BETWEEN TWO CHANNELS

Press **RTN** to return to the last channel that was tuned previously. This is useful should you want to view two channels. This allows you to view two programs without entering an actual channel number each time.

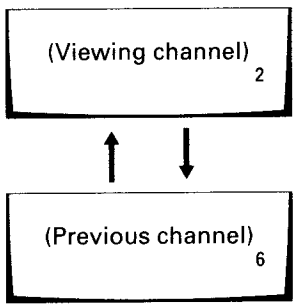
To operate this function

1 Select the first channel you want to view.

2 Select the other channel with the **Channel Number** buttons.

3 Press **RTN.**
The previous channel will return.

Each time you press **RTN**, the TV will switch back and forth between the two channels.



TO SET THE OFF (SLEEP) TIMER

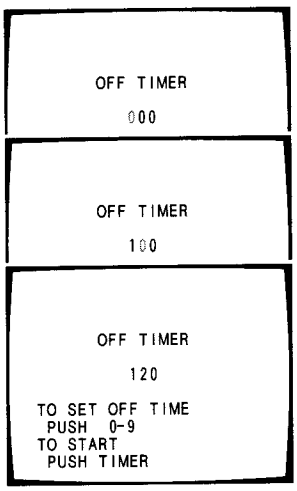
With the OFF timer, you can set the TV to turn off automatically after a pre-determined period of time (every 10 minutes, up to 180 minutes = 3 hours).

1 Press **TIMER** to select the TIMER mode.

2 Press two **Number** buttons to enter the length of time you want the TV to stay on after each number position starts to blink.

Example: 120 minutes
Press 1 and 2.

3 Press **TIMER** to start the timer.
The display color will change from magenta to cyan, and then the display will go off.



To cancel the setting
Press **POWER** twice, once to turn the TV off and once to turn it on again.

Note on the off-timer:
To display the time remaining, press **TIMER once**. The remaining time will be displayed on the screen. To erase the display, press **TIMER twice**.

TO SET THE CLOCK

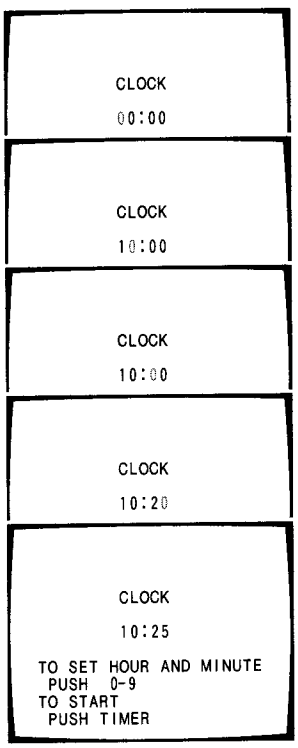
1 Press **TIMER** twice to select the CLOCK mode.

2 Press four **Number** buttons to enter the correct time, after each number position starts to blink.

Example: To set 10:25 p.m.
Press 1, 0, 2, and 5.

- The clock operates on a 12 hour-cycle.

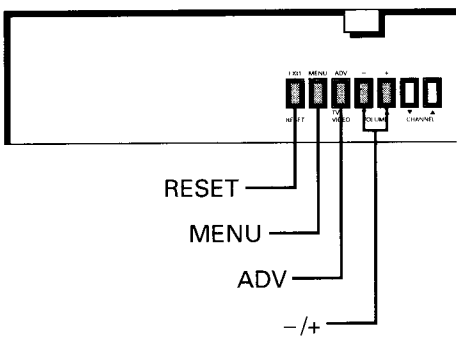
3 Press **TIMER** to start the clock.
The display color will change from magenta to cyan, and then the display will go off.

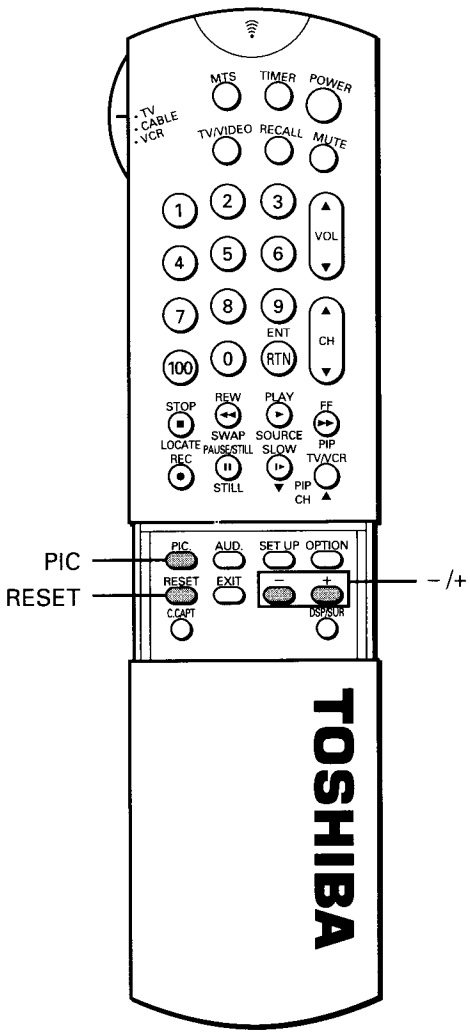


To monitor the time
Press **RECALL**.

Note on the clock:
If the power source for the TV is interrupted (i.e., AC cord unplugged or power failure), the clock will have to be reset. (The time display will show "00:00".)

ADJUSTING THE PICTURE



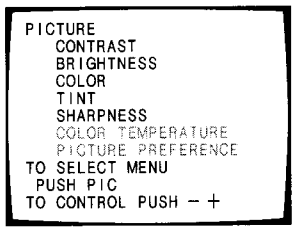


TO ADJUST THE PICTURE QUALITY

You can adjust the picture quality (CONTRAST, BRIGHTNESS, COLOR, TINT and SHARPNESS) to suit your personal preference.

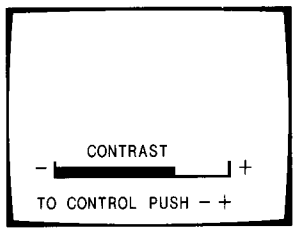
1 Press **PIC** on the Remote Control (or **MENU** on the TV) to display the PICTURE menu.

2 Press **PIC** (or **ADV** on the TV) until the item you want to adjust is displayed in magenta.



3 Press – or + to adjust the level.

Example: CONTRAST adjustment mode display



Press **PIC** or **MENU** (while the bar display remains on the screen). The new setting will appear in the PICTURE menu.

Item	Pressing	
	–	+
CONTRAST	lower	higher
BRIGHTNESS	darker	lighter
COLOR	paler	deeper
TINT	reddish	greenish
SHARPNESS	softer	sharper

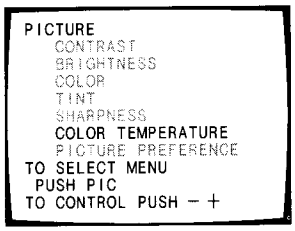
The above five PICTURE items you have adjusted will be stored in the MEMORY of the PICTURE PREFERENCE function. (See page 25.)

To reset the picture adjustments
Press **RESET**. (See page 26 for details.)

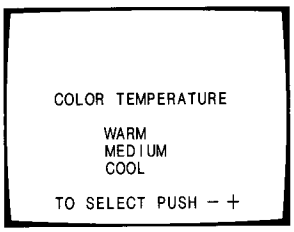
TO SELECT THE COLOR TEMPERATURE

These selections are the difference between the blue and red tones on the picture.

1 Select "COLOR TEMPERATURE" following the steps 1 and 2 on the previous page.



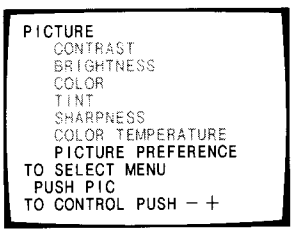
2 Press – or + until your desired mode is displayed in magenta.
Choose between flesh tones that are WARM, MEDIUM and COOL in order.



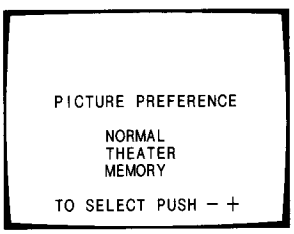
TO SELECT THE PICTURE PREFERENCE FUNCTION

You can select a desired picture tone from three picture preset modes (NORMAL, THEATER, MEMORY) instantly.

1 Select "PICTURE PREFERENCE" following the steps 1 and 2 on the previous page.



2 Press – or + until your desired mode is displayed in magenta.

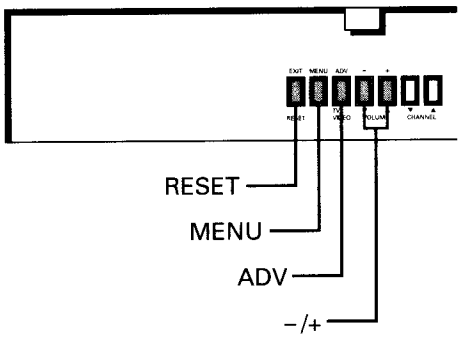


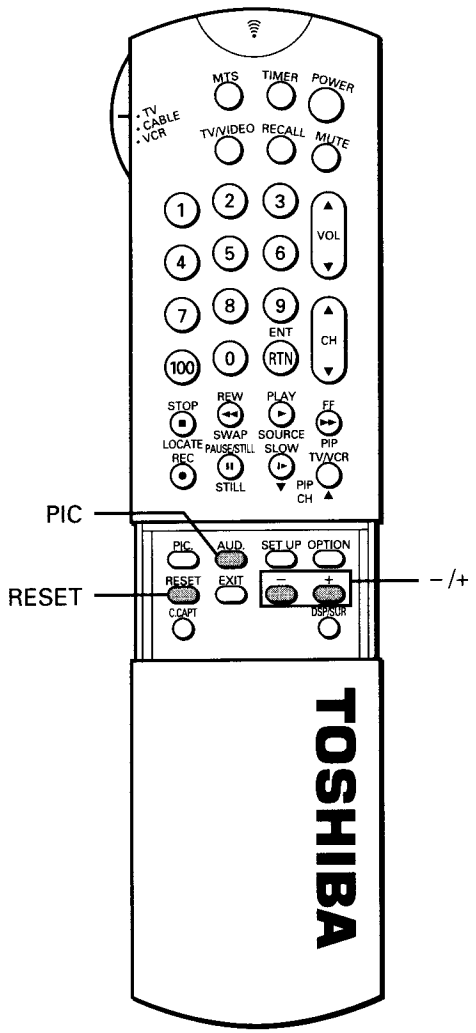
Mode	Picture quality
NORMAL	The picture quality preset at the factory
THEATER	Soft and moody picture
MEMORY	The picture quality you set(First follow page 24.)

Note: Pressing the RESET button resets the picture quality of the MEMORY mode to the factory-preset level.

ADJUSTING THE SOUND

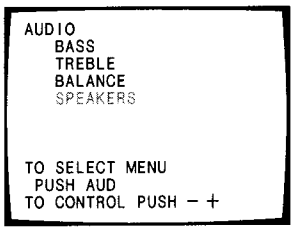
You can adjust the AUDIO functions (BASS, TREBLE and BALANCE) to suit your personal preference.





TO ADJUST THE SOUND QUALITY

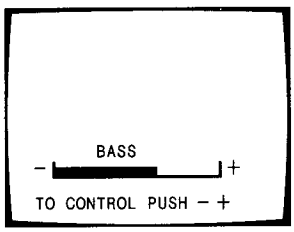
1 Press **AUD** on the Remote Control (or **MENU** on the TV) to display the AUDIO menu on the screen.



2 Press **AUD** (or **ADV** on the TV) until the item you want to adjust is displayed in magenta.

3 Press **–** or **+** to adjust the level.

Example: BASS adjustment mode display



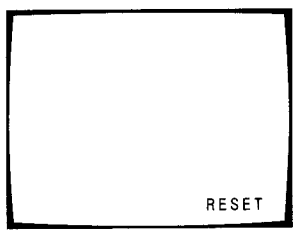
Press **AUD** or **MENU** (while the bar display remains on the screen). The new setting will appear in the AUDIO menu.

Item	Pressing	
	–	+
BASS	weaker	stronger
TREBLE	weaker	stronger
BALANCE	decreases the right channel	decreases the left channel

RESET BUTTON

To reset the PICTURE and AUDIO adjustments to the factory-preset level (maximum CONTRAST and all other adjustments centered)

Press **RESET**.



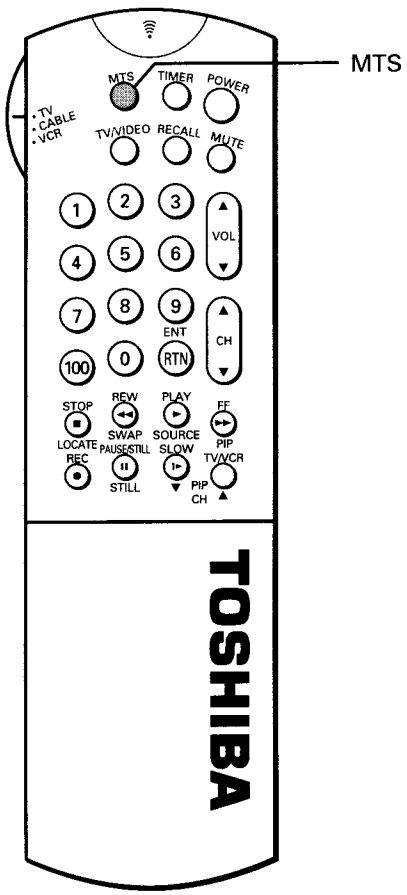
The RESET button also performs the following adjustments.

- COLOR TEMPERATURE..... COOL
- NOISE REDUCTION.....OFF
- PICTURE PREFERENCE.....NORMAL
- PIP CONTRAST.....Maximum setting

Note:
The "SPEAKERS" function is explained on page 45.

SELECTING STEREO/SAP BROADCASTS

The MTS (Multi-channel TV Sound) feature allows you to improve your TV viewing with high fidelity stereo sound. MTS also provides for an extra channel, SAP (Second Audio Program), used to transmit a second language or other audio information.

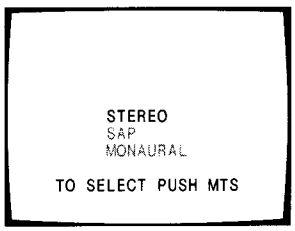


LISTENING TO STEREO SOUND

1 When the TV receives a stereo broadcast, the word "STEREO" is displayed on the screen whenever the TV is turned on, a channel is selected, or the RECALL button is pressed.

2 Press **MTS** until "STEREO" is displayed on the screen in magenta.
The usable selections are displayed in yellow.

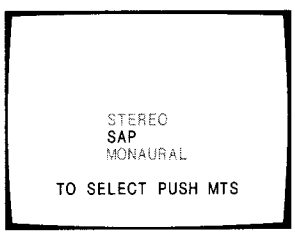
Normally this function can be left in the STEREO mode. Your TV will then automatically reproduce either stereo or monaural sound, whichever is broadcast.



LISTENING TO SECOND LANGUAGE

1 When the TV receives a SAP broadcast, the word "SAP" is displayed on the screen.

2 Press **MTS** until "SAP" is displayed in magenta.
You will hear only the second language from the left and right speakers.

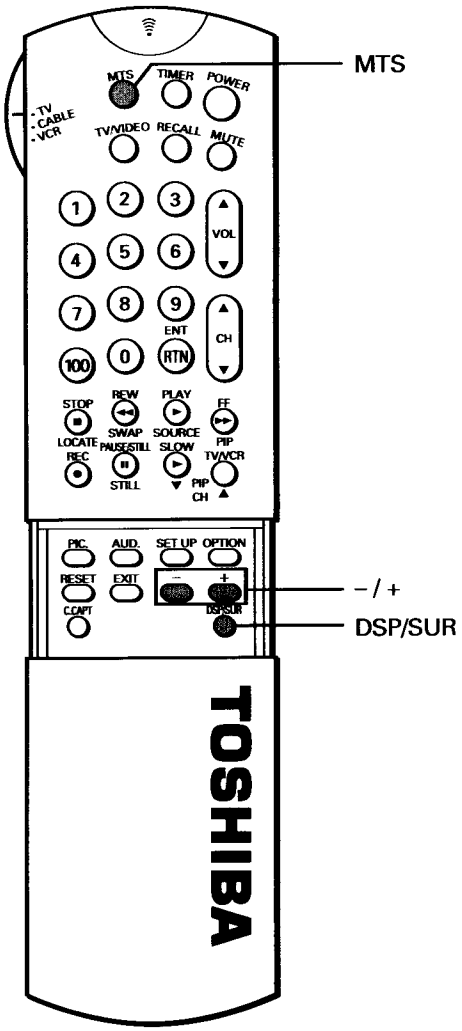


If the stereo sound is noisy
If a broadcast signal is not strong enough, and noise-free stereo sound is not available, select the MONAURAL mode. The noise should be reduced.

Notes:
- Be sure you have selected the STEREO mode if broadcast is in stereo.
- The MTS button will not function in the VIDEO mode.

ENHANCING THE SURROUND SOUND EFFECT

The Surround function expands the audio listening field wider and deeper than you would believe possible from a TV's speakers. This function processes stereo signals from a TV brodcast or VIDEO input.

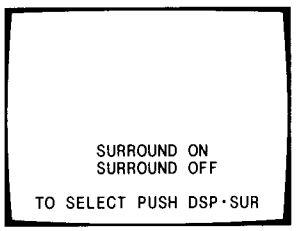


TO ACTIVATE THE SURROUND FUNCTION

1 Press **MTS** to select the STEREO mode.

2 Press **DSP/SUR** on the Remote Control to call up the Surround ON/OFF mode on-screen display as shown.

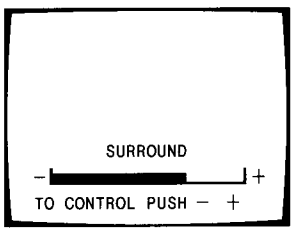
Press **DSP/SUR** until "SURROUND ON" is displayed in magenta.



The Surround function has now been activated.

3 **To adjust the Surround level**
Press – or + while the Surround ON/OFF mode display shown above is on the screen to call up the Surround adjustment mode display.

Press + to increase Surround level.
Press – to decrease Surround level.



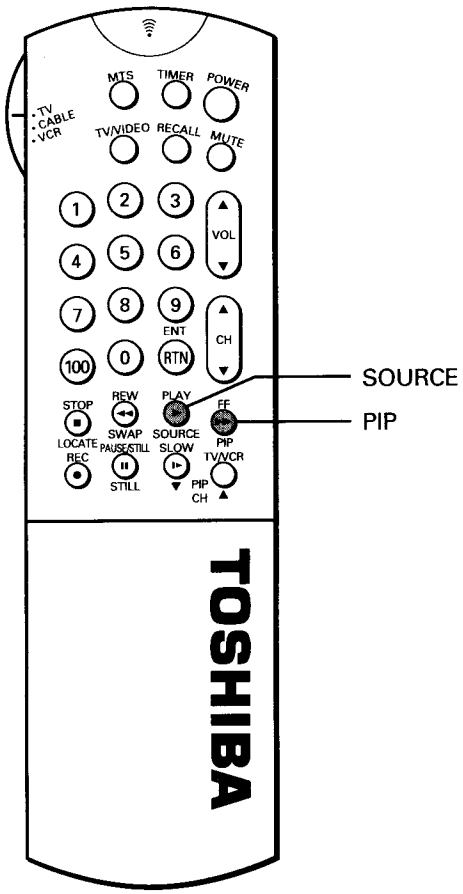
To deactivate the Surround
Select "SURROUND OFF" in the Surround ON/OFF mode display.

Note: Normally you can leave the MTS button set to "STEREO" and the Surround function set to "ON". The TV will automatically produce either Surround stereo or monaural, whatever is broadcast.

WATCHING PICTURE IN PICTURE (PIP)

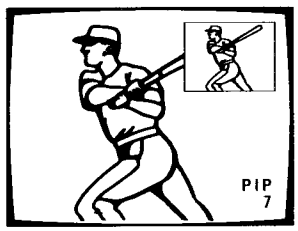
In addition to the main picture, another TV program or video source being received through the VIDEO input jacks can be displayed simultaneously as a small picture. After you have connected another video source (such as a VCR) to your TV, you are ready to display the Picture in Picture (PIP). For connection details, see pages 41-43.

Note: When using the PIP, the TV can display two pictures at once. However, one picture must be from an antenna input channel and the other must be from a VIDEO input channel.

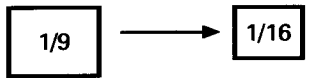


TO DISPLAY THE PIP

1 To open up the PIP window
Press **PIP** once. The 1/9 size picture will appear. The main picture and small-picture will be the same.



2 To change the window size
Press **PIP** again. The 1/16 size picture will appear.

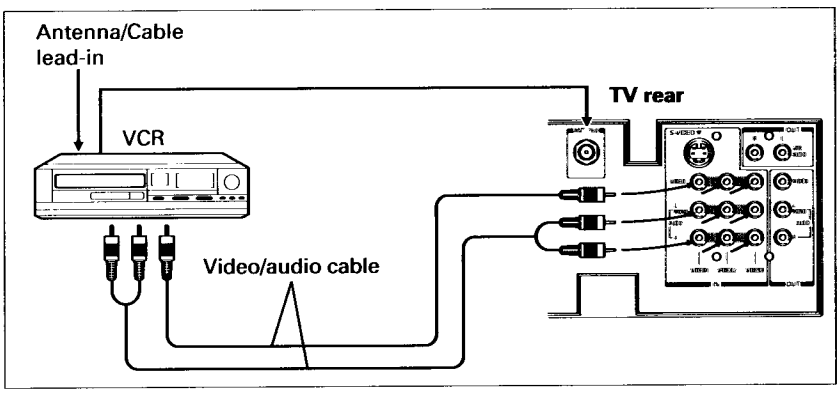


3 To make the PIP window disappear
Press **PIP** again.

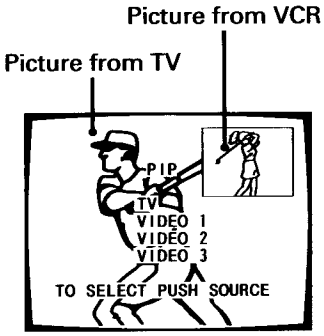
Each time you press **PIP**, above 1, 2 or 3 will be selected cyclically.

TO DISPLAY A PICTURE FROM AN EXTERNAL SOURCE

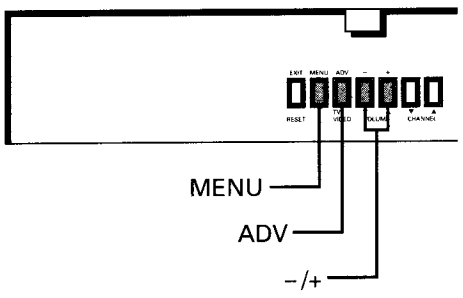
Connect the other source (VCR camcorder, etc.), to one of the VIDEO inputs.



Press **SOURCE** repeatedly to select input source.
The selected mode will be displayed in magenta.
Select "VIDEO 1", "VIDEO 2" or "VIDEO 3".



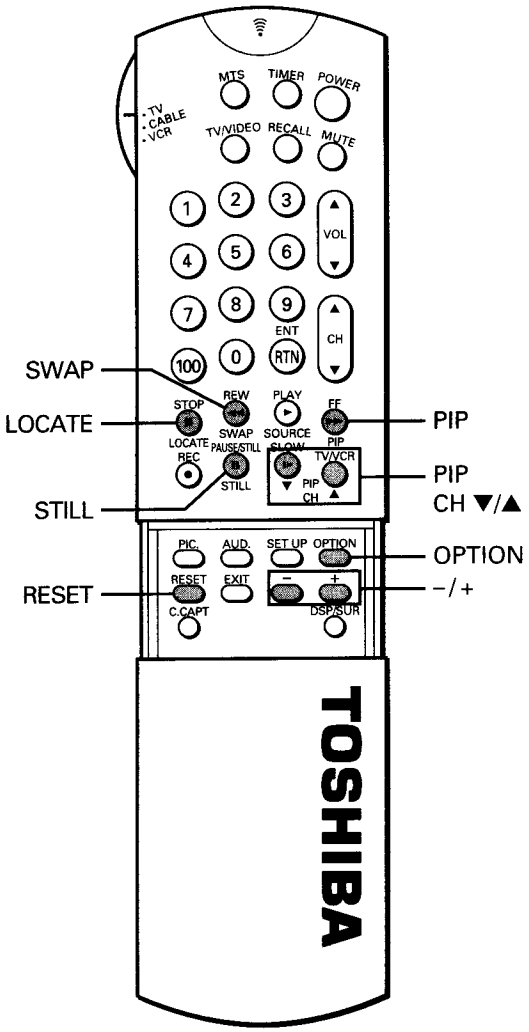
WATCHING PICTURE IN PICTURE (Continued)



TO CHANGE TV CHANNELS IN PIP

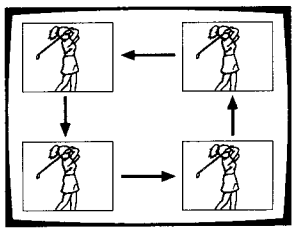
The PIP CH ▼/▲ buttons are available when the main picture you are watching is coming from the other source, such as VCR.
Use the SWAP button shown below.
Press "▲" to select the next higher channel in channel memory.
Press "▼" to select the next lower channel in channel memory.

Note: If you cannot select any certain Cable channel, resetting the TV•CABLE function may be necessary. Try to select another CABLE mode. See page 19.



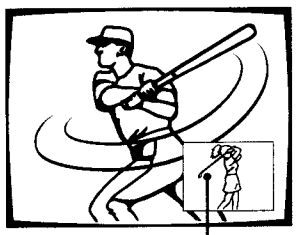
TO CHANGE THE POSITION OF THE PIP

Press **LOCATE** to move the PIP to the next corner.



TO FREEZE THE SMALL PICTURE

Press **STILL** once while the PIP is on the screen to freeze the PIP picture.
To return to an action picture, press **STILL** again.



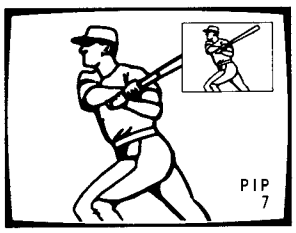
Still picture

TO SWITCH THE MAIN AND SMALL PICTURE

Press **SWAP** once to switch the PIP picture with the main picture.

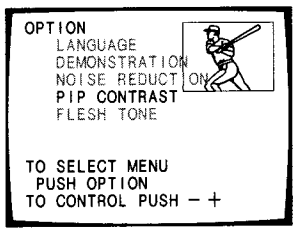
ADJUSTING PIP CONTRAST

1 Press **PIP** to display the PIP.



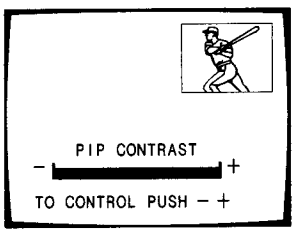
2 Press **OPTION** on the Remote Control (or **MENU** on the TV) to display the Option menu on the screen.

3 Press **OPTION** repeatedly (or **ADV** on the TV) until "PIP CONTRAST" is displayed in magenta.



4 Press – or + to call up the PIP CONTRAST adjustment mode display on the screen.

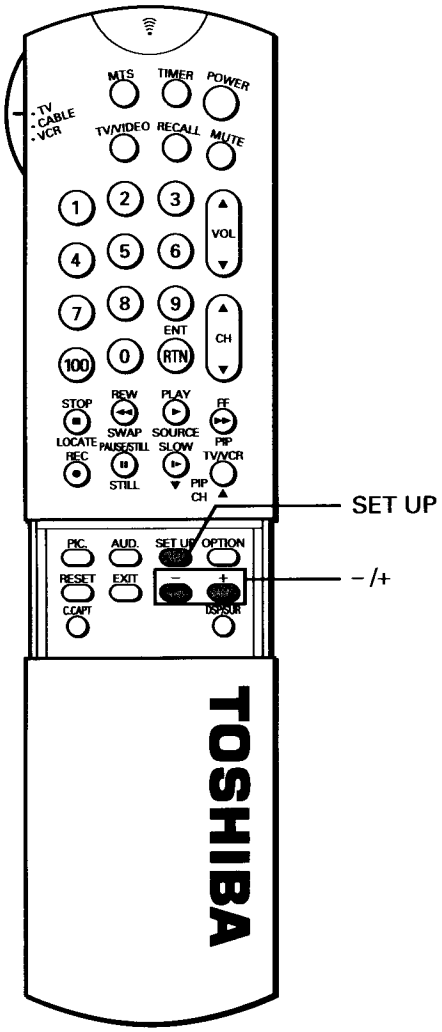
Press + to increase contrast.
Press – to decrease contrast.
Press and hold either button until your desired contrast is obtained.



Note: If the RESET button is pressed, the PIP contrast will be reset to the maximum (factory-preset level).

CAPTIONING CHANNELS

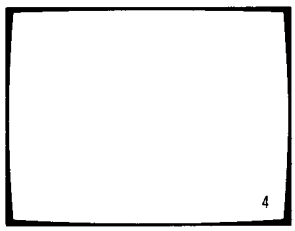
This feature allows you to enter a four letter channel identifier of your choice that will appear over the channel number display. The caption can be anything you want (for example the station call letters).



TO CAPTION CHANNELS

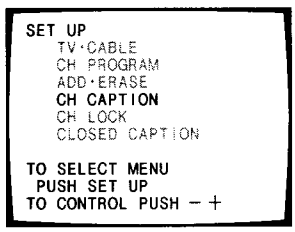
1 Select the channel you want to caption.

Example: To assign "ABCD" to channel 4.

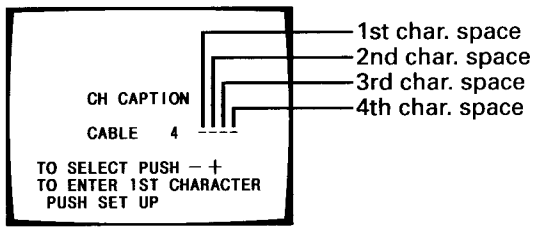


2 Press **SET UP** on the Remote Control to display the SET UP menu on the screen.

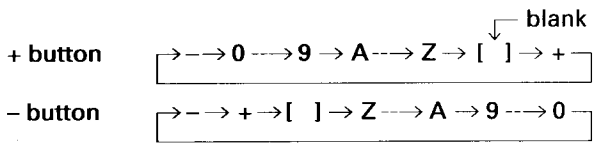
3 Press **SET UP** repeatedly until "CH CAPTION" is displayed in magenta.



4 Press – or + to call up the caption setting mode display shown below on the screen.

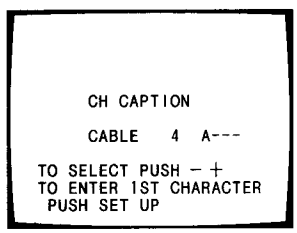


Letters of the alphabet, numbers and other graphic symbols are available for captioning.
Each time you press the – or + button, the character to be displayed will change in the following order.

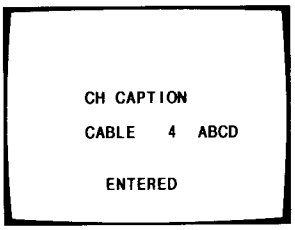


5 Press – or + to put a character "A" in the 1st character space.
Press the button until the character you want appears on the screen.

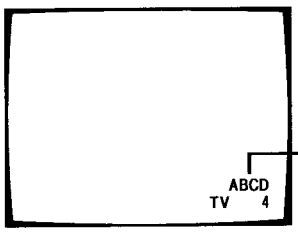
6 Press **SET UP** once to enter the 1st character and to advance to the next character space.



7 Repeat steps 5 and 6 to enter the 2nd, 3rd and 4th characters "B", "C", "D". When the on-screen message at the right appears, the channel caption has been stored in the memory.



8 Repeat steps 1 through 7 for other channels.
You can caption up to 32 channels.
The caption will appear when you turn the TV on, select a channel, or press the RECALL button.



Channel caption

TO CLEAR YOUR CAPTIONING

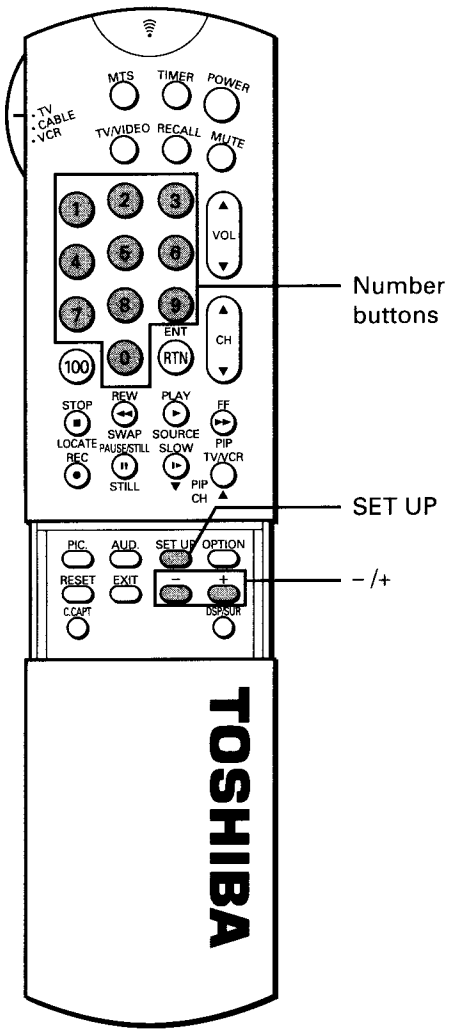
1 Select the channel which has the caption you want to erase.

2 Call up the channel caption setting mode display following steps 2 to 4 in the previous page.

3 Enter "[blank]" or "–" in all character spaces.

LOCKING CHANNELS

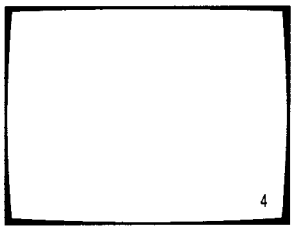
With this function you can lock out specific channels (for example a channel that you do not want your children to watch) by entering your own 4-digit code. The TV will not be able to tune them for the next 24 hours, unless you cancel the locked out channels. This TV has 4 memory spaces total for the TV mode and CABLE mode respectively.



TO LOCK OUT CHANNELS

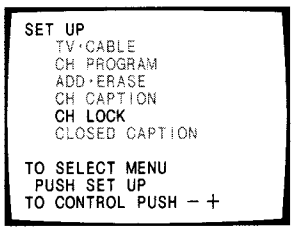
1 Select a channel you want to lock out.

Example: channel 4

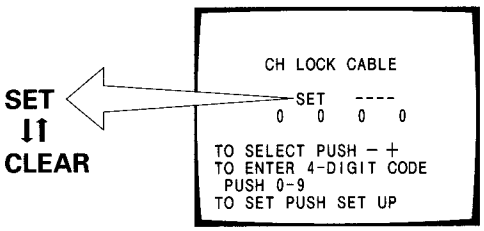


2 Press **SET UP** on the Remote Control to display the SET UP menu on the screen.

3 Press **SET UP** repeatedly until "CH LOCK" is displayed in magenta.



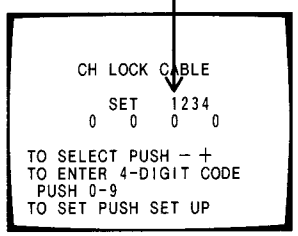
4 Press **–** or **+** to call up the channel lock adjustment mode display shown below. Each time you press the button, "SET" and "CLEAR" alternate. Select "SET".



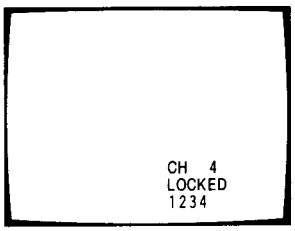
5 Press **Number** buttons (0 - 9) to enter a 4-digit code.
The numbers you enter will replace the dashes in the display.
Pick a number that is easy to remember.

Example: To enter "1234".
Press 1, 2, 3, and 4 in order.

1 ----→ 12 --→ 123 --→ 1234



6 Press **SET UP** to lock out the channel.
The display at the right will appear on the screen for about 4 seconds.



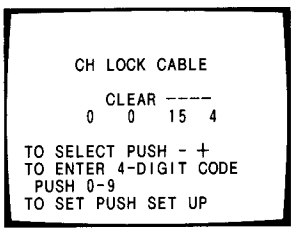
7 Repeat steps 1 to 6 for other channels.
This TV has 4 memory spaces total for the TV mode and CABLE mode respectively.

Note: If a different code number is used whenever you lock out a channel, the last one has priority over the preceding ones.

8 Select another channel, or turn off the TV if desired.

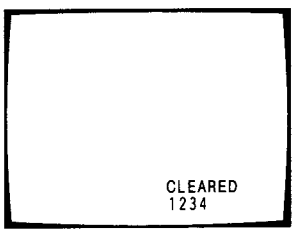
TO RESTORE CHANNELS

1 Select "CLEAR" following the steps 2 to 4 in the previous page.

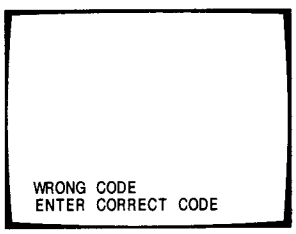


2 Press the 4-digit code used to lock out the channels with the **Number** buttons.

3 Press **SET UP**.
If you have entered the correct code
The display shown at the right appears.

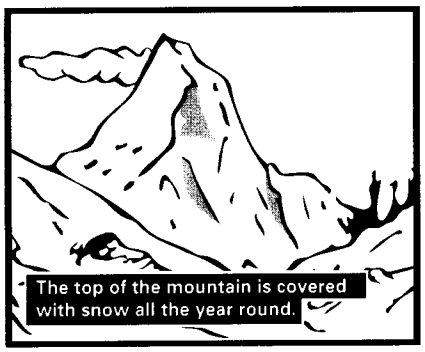


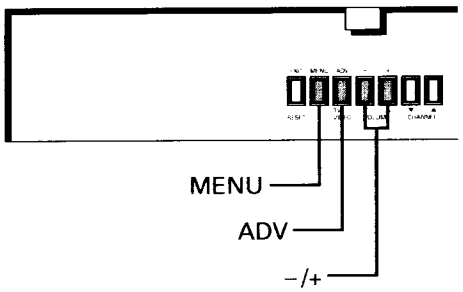
If a wrong code has been entered
These messages appear. Try to enter the correct code again.

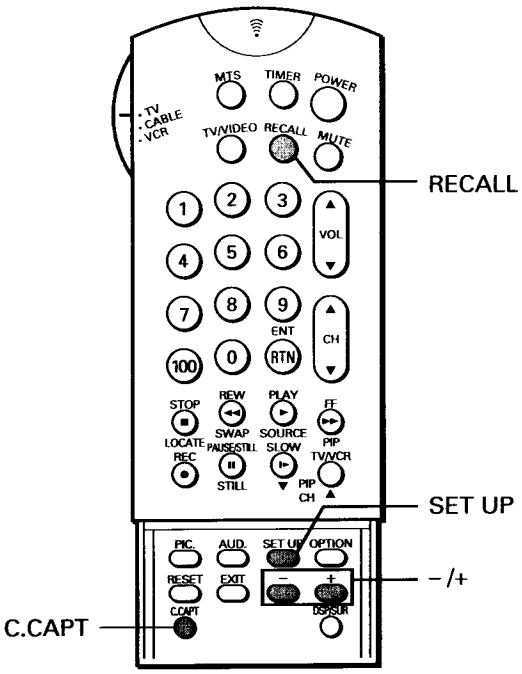


If you want to know the channels you have locked out
Call up the channel lock adjustment mode using the SETUP button and –/+ buttons.

OPERATING CLOSED CAPTIONING FEATURE





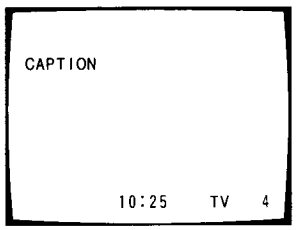


TO VIEW CAPTIONS

Closed captioning is a printed version of the dialogue, narration, and/or sound effects of a TV program.
Captions will appear at either the top or bottom of the screen during captioned broadcasts as shown.
Captioning is especially helpful for hearing impaired individuals.

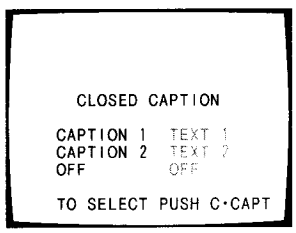
1 Select the desired program.

2 Press **RECALL** to check if the program is being captioned. If it is, the word "CAPTION" is displayed on the screen. The captioned programs are usually notated on your local TV listings by its service marks such as "CC".



3 Press **C.CAPT** on the Remote Control to call up the closed caption mode display. Usable selections are displayed in yellow.

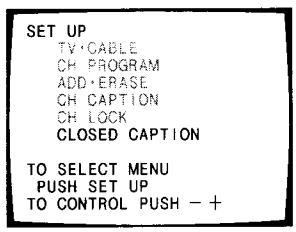
Press **C.CAPT** repeatedly until "CAPTION 1" or "CAPTION 2" is displayed in magenta. The CAPTION 2 mode may be utilized for alternate languages if they are being transmitted.



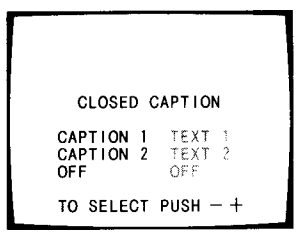
You can also select this feature using the on-screen menu function.

1 Press **SET UP** on the Remote Control (or **MENU** on the TV) to display the SET UP menu on the screen.

2 Press **SETUP** repeatedly (or **ADV** on the TV) until "CLOSED CAPTION" is displayed in magenta.



3 Press – or + to select "CAPTION 1" or "CAPTION 2".



To deactivate this feature

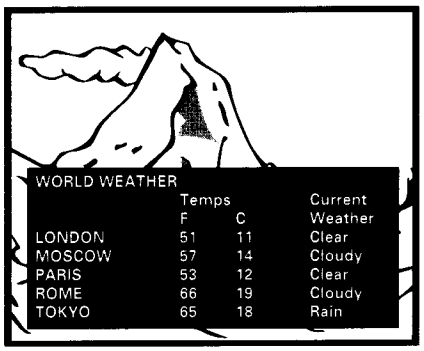
Select "OFF" in the closed caption mode display.

Note:

A closed-captioned signal may not be decoded in the following situations.
- When a video tape has been dubbed.
- When the signal reception is weak.
- When the signal reception is non-standard.

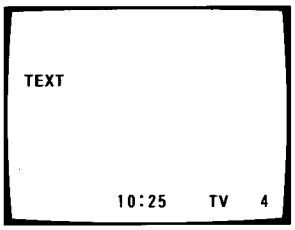
TO VIEW TEXT

Text is information that is presented using from one half to full television screen. It is usually not related to the program.
For example, it could be a listing of the closed-captioned programs, news, weather information or stock market reports.



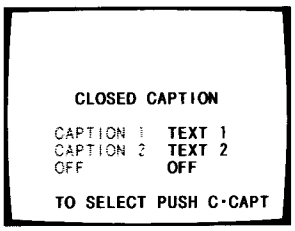
1 Select the desired program.

2 Press **RECALL** to check if the program includes TEXT information.
If it does, the word "TEXT" is displayed on the screen.



3 Press **C.CAPT** on the Remote Control to call up the closed caption select mode display. Usable selections are displayed in yellow.

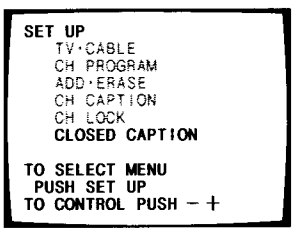
Press **C.CAPT** repeatedly until "TEXT 1" or "TEXT 2" is displayed in magenta.



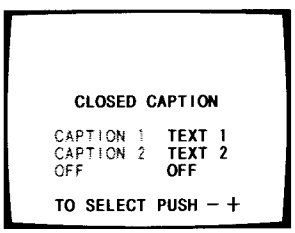
You can also select this feature using the on-screen menu function.

1 Press **SET UP** on the Remote Control (or **MENU** on the TV) to display the SET UP menu on the screen.

2 Press **SET UP** repeatedly (or **ADV** on the TV) until " CLOSED CAPTION" is displayed in magenta.



3 Press – or + to select "TEXT 1" or "TEXT 2".

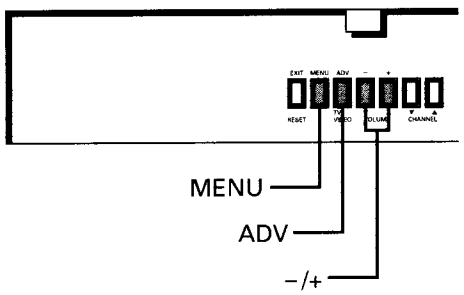


To deactivate this feature
Select "OFF" in the closed caption mode display.

Note:
If you select a Caption format channel and the "TEXT" mode, the TEXT screen will always be displayed.
However, if TEXT character signals are not transmitted, the characters are not displayed.

CHANGING ON-SCREEN DISPLAY LANGUAGE

Three different languages (ENGLISH, FRENCH and SPANISH) are available for the on-screen displays (adjustment menus, and messages), and you can choose the desired one.



TO SELECT A LANGUAGE

1 Press **OPTION** on the Remote Control (or **MENU** on the TV) to display the OPTION menu on the screen.

```
OPTION
   LANGUAGE
   DEMONSTRATION
   NOISE REDUCTION
   PIP CONTRAST
   FLESH TONE

TO SELECT MENU
 PUSH OPTION
TO CONTROL PUSH – +
```

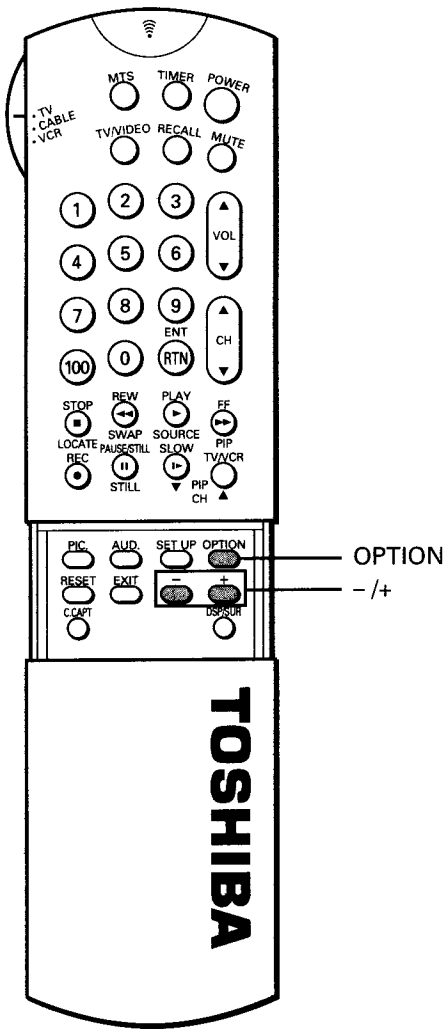
2 Press **OPTION** repeatedly or (or **ADV** on the TV) until "LANGUAGE" is displayed in magenta.

3 Press – or + until your desired language is displayed in magenta.

```
LANGUAGE

 ENGLISH
 FRENCH
 SPANISH

TO SELECT PUSH - +
```



Example: Picture menu display

"ENGLISH"

```
PICTURE
   CONTRAST
   BRIGHTNESS
   COLOR
   TINT
   SHARPNESS
   COLOR TEMPERATURE
   PICTURE PREFERENCE
TO SELECT MENU
 PUSH PIC
TO CONTROL PUSH – +
```

"FRENCH"

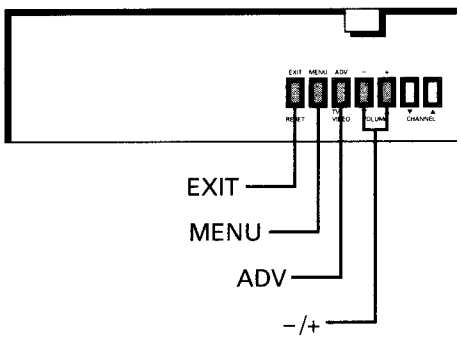
```
IMAGE
   CONTRASTE
   LUMINOSITE
   COULEUR
   TEINTE
   NETTETE
   COULEUR TEMPERATURE
   PREFERENCE D IMAGE
APPUYEZ PIC
 POUR SELECT MENU
APPUYEZ - + POUR REGLAGE
```

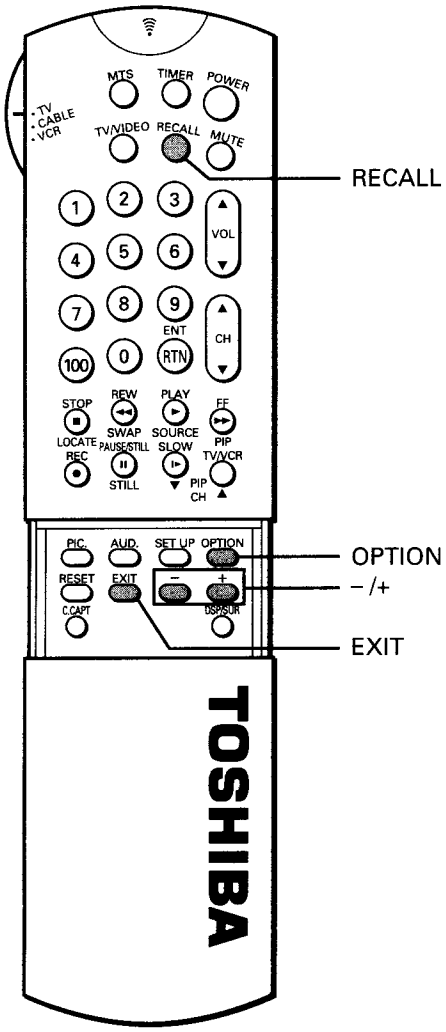
"SPANISH"

```
IMAGEN
   CONTRASTE
   BRILLO
   COLOR
   TINTE
   NITIDEZ
   TEMPERATURA DE COLOR
   PREFERENCIA DE IMAGEN
APRETAR PIC
 PARA ESCOJER MENU
APRETAR - + POR CONTROL
```

ACTIVATING ON-SCREEN DEMONSTRATION

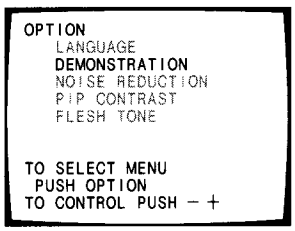
When this function is activated, your TV will automatically display a variety of its on-screen menus and special features.
This function is provided for demonstration purpose only.
You may not need to use this function.





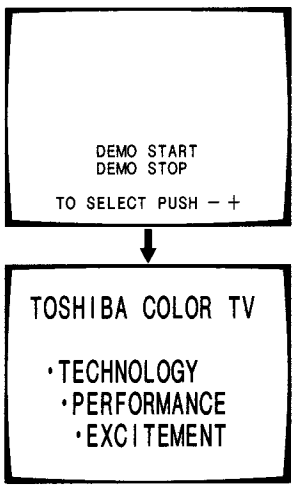
TO START THE AUTO DEMONSTRATION

1 Press **OPTION** on the Remote Control (or **MENU** on the TV) to display the OPTION menu on the screen.



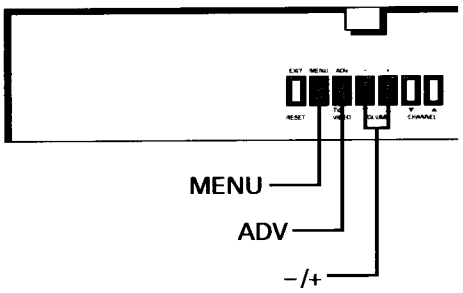
2 Press **OPTION** repeatedly (or **ADV** on the TV) until "DEMONSTRATION" is displayed in magenta.

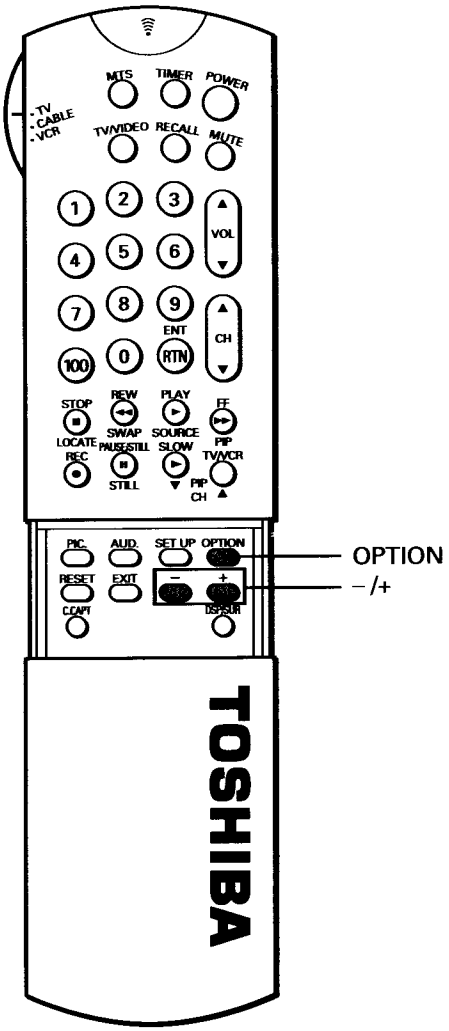
3 Press – or + until "DEMO START" is displayed on the screen in magenta. The on-screen demonstration will start after about 6 seconds.



To stop the demonstration
Press **RECALL** or **EXIT**, or select "DEMO STOP" in the step 3 above.

ACTIVATING NOISE REDUCTION/ FLESH TONE FUNCTIONS



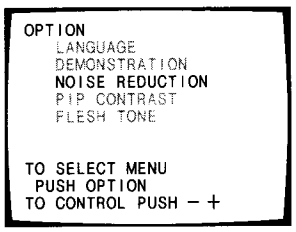


TO REDUCE PICTURE NOISE

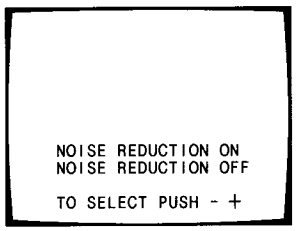
This function allows you to reduce visible interference in your TV picture. This is useful when receiving a broadcast with a weak signal or playing back a video cassette or disc damaged by repeated use.

1 Press **OPTION** on the Remote Control (or **MENU** on the TV) to display the OPTION menu on the screen.

2 Press **OPTION** repeatedly (or **ADV** on the TV) until "NOISE REDUCTION" is displayed in magenta.



3 Press – or + until "NOISE REDUCTION ON" is displayed on the screen in magenta.

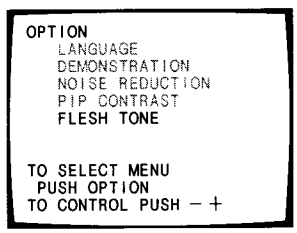


To deactivate this function
Select "NOISE REDUCTION OFF".

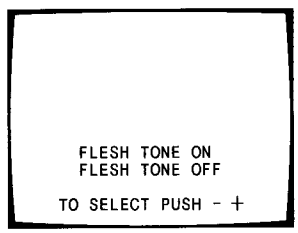
TO ACTIVATE FLESH TONE FUNCTION

This function allows you to obtain natural flesh tone by correcting the reference of tint between TV stations.

1 Select "FLESH TONE" following steps 1 and 2 above.



2 Press – or + until "FLESH TONE ON " is displayed on the screen in magenta.

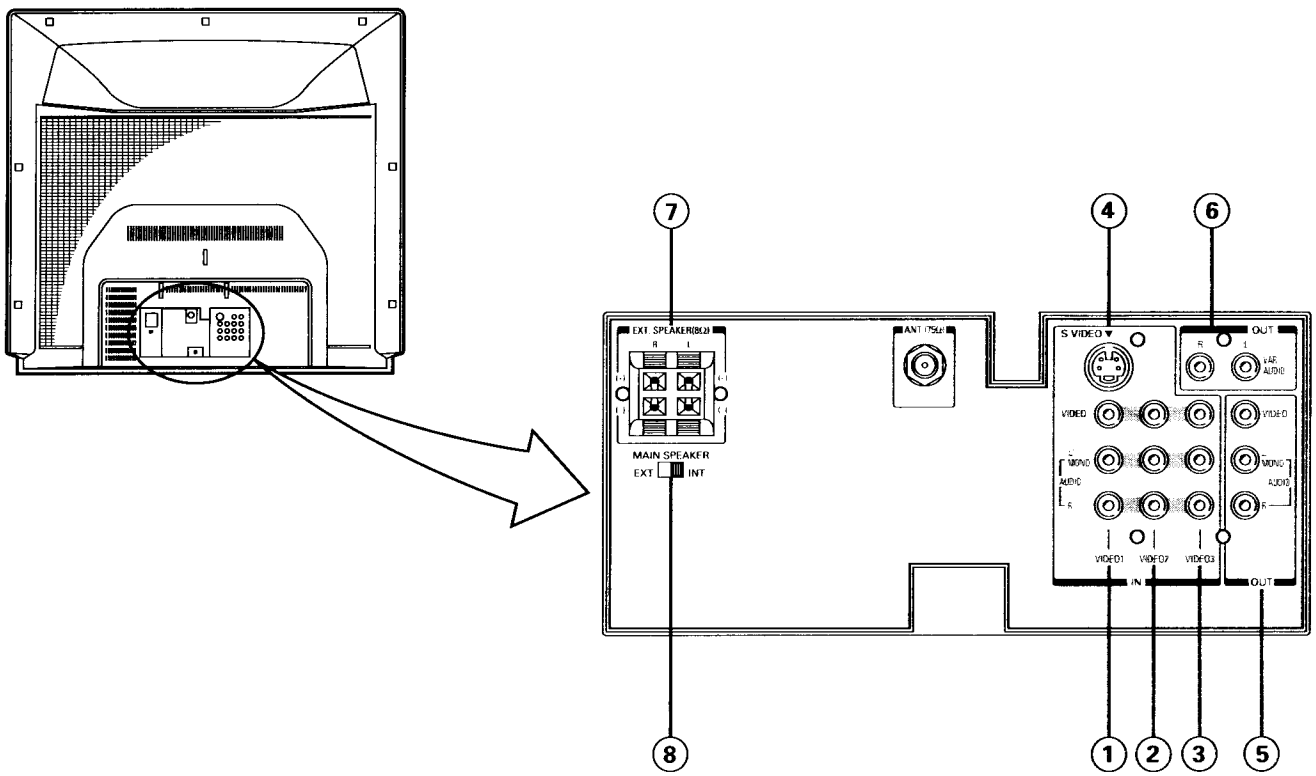


To deactivate this function
Select "FLESH TONE OFF".

MONITOR PANEL

This TV set is equipped with S-VIDEO INPUT jacks, VIDEO/AUDIO INPUT jacks, VIDEO/AUDIO OUTPUT jacks, VARIABLE AUDIO OUTPUT jacks, and EXTERNAL SPEAKER terminals for connecting your desired video/audio equipment.

TV rear



① ② ③ **VIDEO 1/VIDEO 2/VIDEO 3 IN Jacks** – provide for direct connection of video devices (VCR, video disc player, camcorder, etc.) with video/audio outputs. Connection details are on page 42.

④ **S-VIDEO IN Jack** – provides for direct S-video connection from an S-VHS VCR or a video disc player.The TV's VIDEO 1 audio jacks can also be used to connect the VCR's audio cables.
Connection details are on page 43.

⑤ **VIDEO/AUDIO OUT Jacks** – provide fixed-level audio and video outputs from whatever is displayed on the screen. Connection details are on pages 44 and 45.

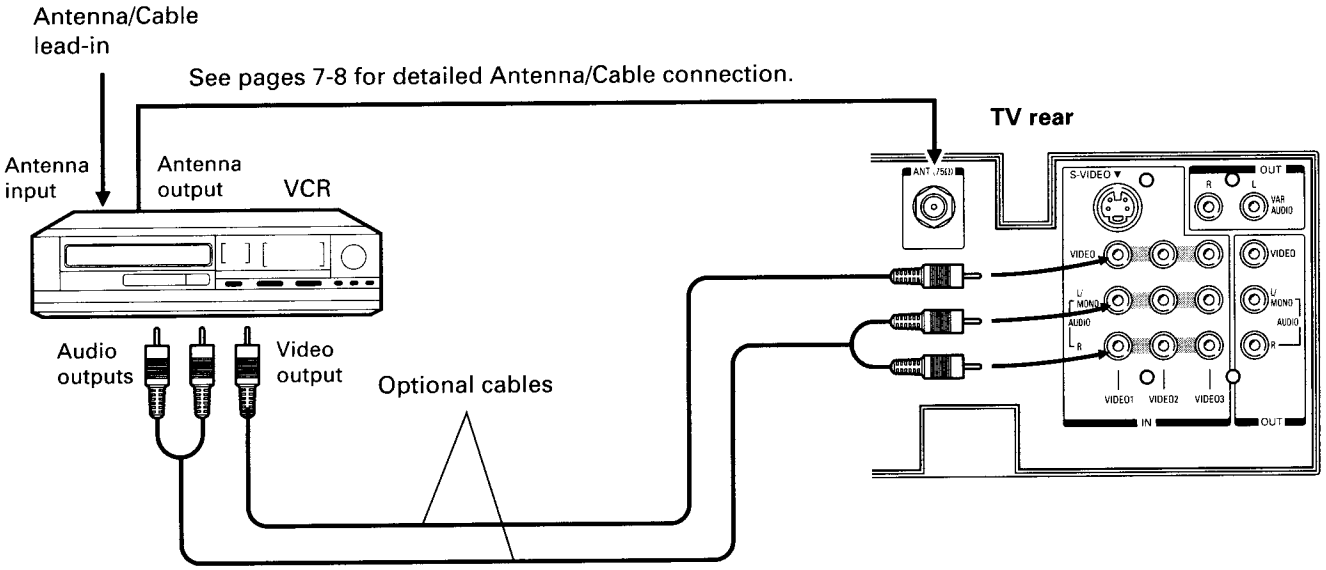
⑥ **VARIABLE AUDIO OUT Jacks** – feed volume-controlled stereo audio out from whatever is displayed on the screen, allows connection of audio amplifier and lets you adjust sound level with TV's remote.
Connection details are on page 45.

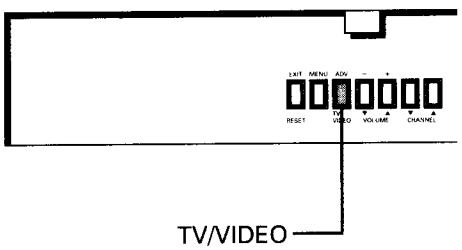
⑦ **EXTERNAL SPEAKER Terminals** – provide for direct connection of external speakers.
Connection details are on page 46.

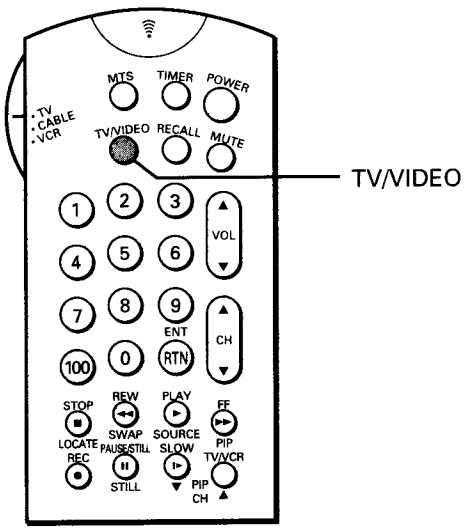
⑧ **MAIN SPEAKER Switch** – lets you turn off TV's built-in speakers so that sound will instead come through speakers connected to EXTERNAL SPEAKER terminals. See page 46 for details.

CONNECTING A STANDARD VCR

Connect VIDEO1, VIDEO2 or VIDEO3 IN jacks on the TV rear panel to the video/audio output jacks of a VCR, video disc player, comcorder, etc. for playback of video material.





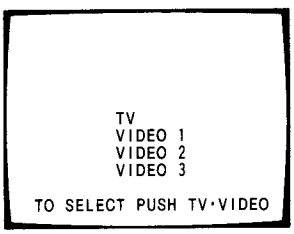


TO SELECT VIDEO INPUT SOURCE

To operate your TV and video equipment properly, refer to the instructions furnished with the video equipment.

1 Turn the TV and VCR ON.

2 Press **TV/VIDEO** on the Remote Control or on the TV to select the appropriate source:
Each time you press **TV/VIDEO**, TV, VIDEO 1, VIDEO 2, or VIDEO 3 source will be selected in order.
Press **TV/VIDEO** until "VIDEO 1", "VIDEO 2" or "VIDEO 3" is displayed in magenta.



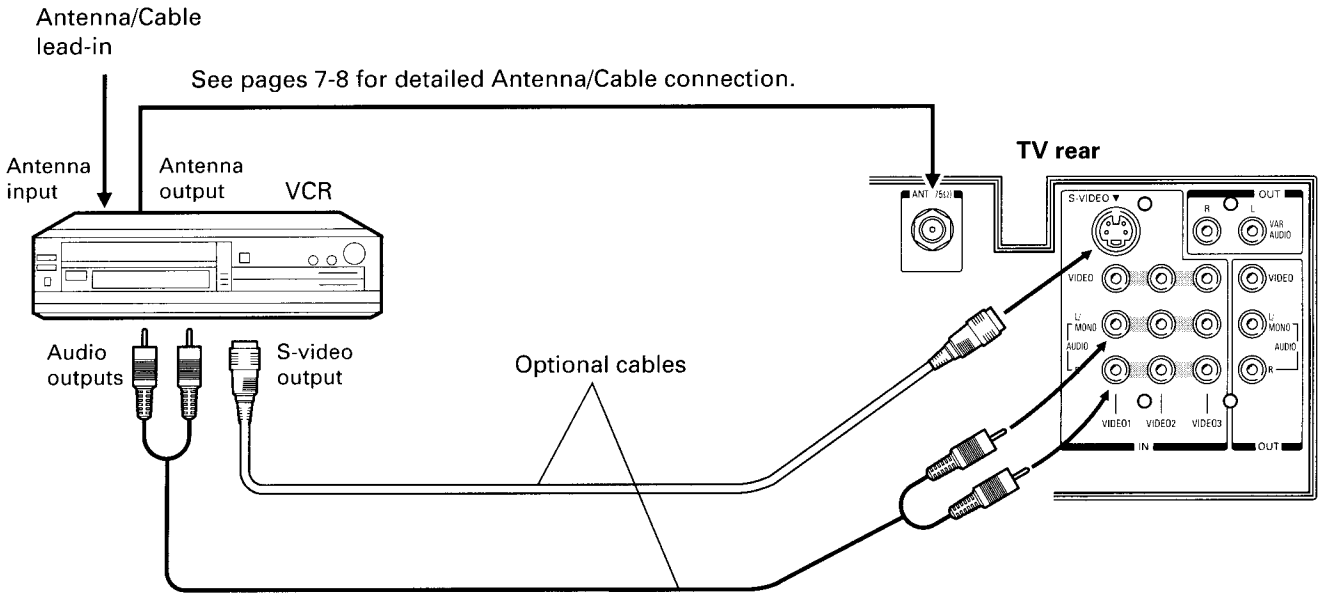
3 Operate your VCR normally.

Notes:

- The VIDEO 2 IN jacks can also be used for connecting a second piece of video equipments with video/audio outputs. To view video from equipment connected to the VIDEO 2 IN jacks, select "VIDEO 2".
- The VIDEO 3 IN jacks can also be used for connecting a third piece of video equipments with video/audio outputs. To view video from equipment connected to the VIDEO 3 IN jacks, select "VIDEO 3".
- If you connect a monaural VCR, connect the audio output of the VCR to the L/MONO jack of VIDEO 1/2/3 on the TV.

CONNECTING A VCR WITH AN S-VIDEO JACK

If you connect a VCR with an S-video jack to the "S-VIDEO" jack on the back of the TV, you must also connect the audio cables to the AUDIO jacks of "VIDEO 1 IN" on the back of the TV. The S-video cable only carries the video signal. Audio signals are separate.



TO SELECT VIDEO INPUT SOURCE

1 Turn the TV and VCR ON.

2 Press **TV/VIDEO** to select the "VIDEO 1" mode.

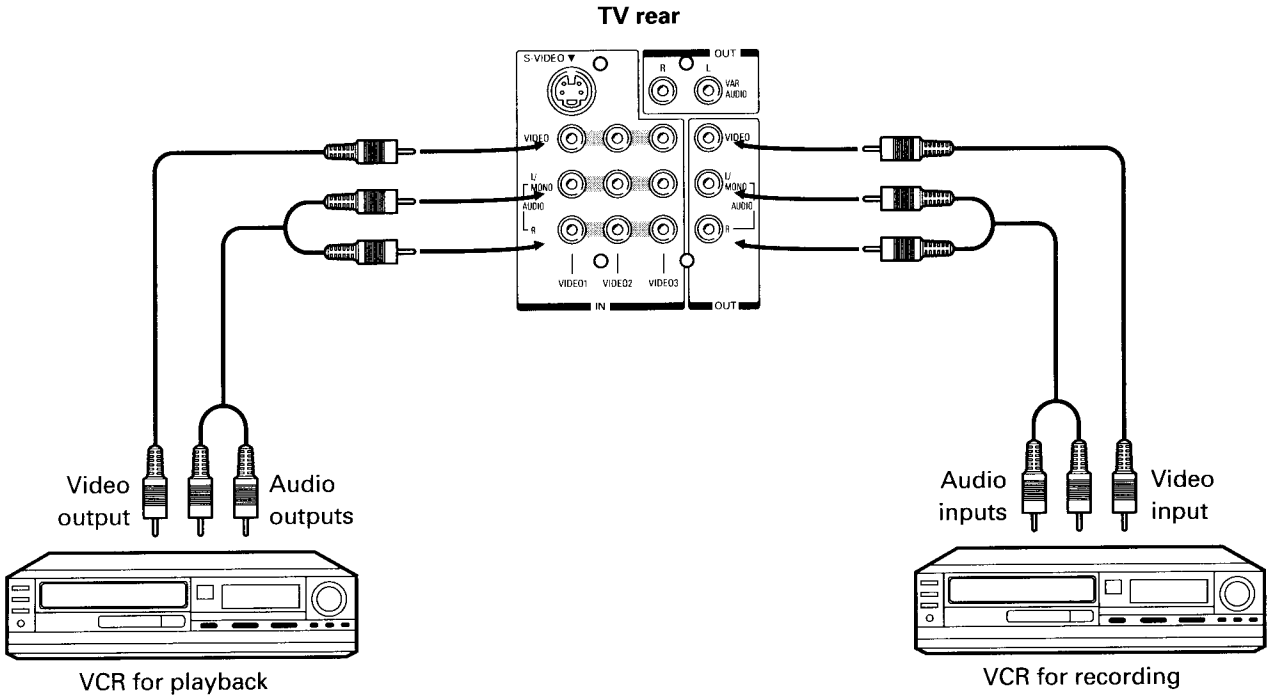
3 Operate your VCR normally.

Notes:

- The S-VIDEO jack has priority over the phone-type (yellow) video jack when both are used.
- The S-VIDEO terminal accepts SEPARATED Luminance/Chrominance (Y-C) signals conforming to the NTSC standard.

DUBBING/EDITING VIDEO TAPES USING 2 VCRs

To dub or edit your own video tapes between one VCR and another, connect the VCR that will play to the input jacks (VIDEO 1, VIDEO 2 or VIDEO 3) on the TV. Then connect the output jacks from the TV to the input jacks on the recording VCR.
Note: Do not connect one VCR to the output and input jacks on the TV at the same time.



TO MONITOR YOUR DUBBING/EDITING

1 Turn the TV and both VCR's ON.

2 Press **TV/VIDEO** on the Remote Control or on the TV to select the "VIDEO 1" mode.

3 Set the VCR for recording to record mode and the VCR for playback to play.

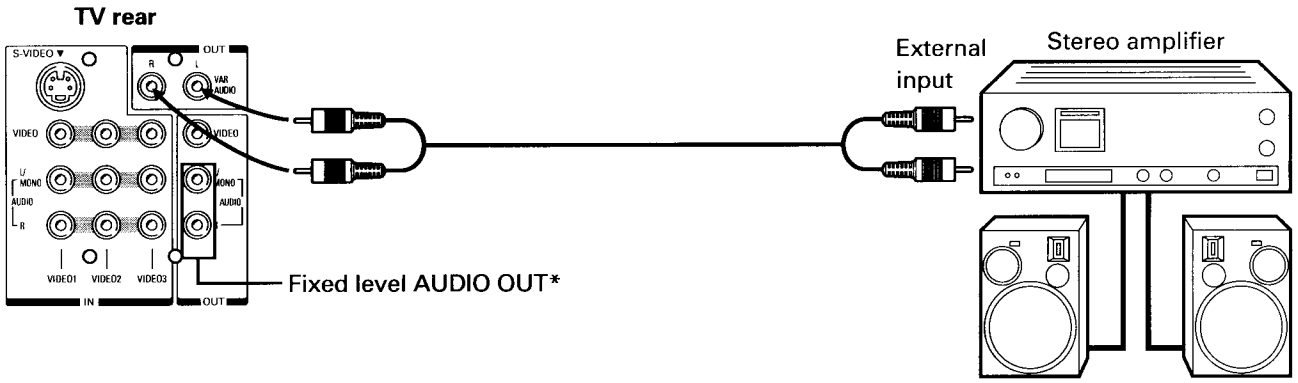
4 You can view the video tape from the VCR for playback on the TV screen while dubbing it with the VCR for recording.

CAUTION:
The unauthorized recording of television programs, video tapes and other materials may infringe upon the provisions of the copyright laws.

Notes:
- The input switch of the VCR is normally in the TV position.
  Change the switch of recording VCR to the LINE or CAMERA position when using the video/audio inputs of the VCR as above. Some VCR's automatically switch when the cables are plugged into the video/audio inputs.
- The PIP picture cannot be output from the VIDEO OUT jack.

CONNECTING AN AUDIO AMPLIFIER

Connect the VARIABLE AUDIO OUT jacks to the external input jacks on the stereo amplifier. You will be able to change and mute volume with the TV's remote control. You will also be able to control bass, treble and balance functions.



* The "fixed level" audio signal present at the AUDIO jacks of VIDEO/AUDIO OUT jacks is also ideal for connecting an audio cassette recorder (or amplifier) to record audio from the TV. This constant audio signal is not affected by pressing VOLUME buttons on the TV or the TV's remote control.

PREPARING FOR USE

1 Turn the TV and stereo amplifier ON.

2 Adjust the VOLUME control on the TV for a moderate listening level.

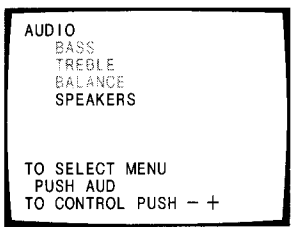
3 Disconnect the built-in speakers following the instructions at the right.

4 Adjust the volume control on the stereo amplifier for a moderate listening level.

5 Control of the audio can now be done using the audio function buttons (VOLUME, MUTE, BASS, TREBLE and BALANCE) on the TV's remote control.

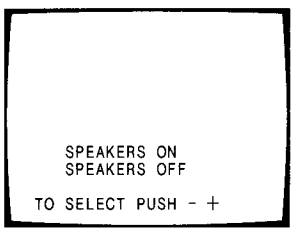
TO DISCONNECT THE BUILT-IN SPEAKERS

1 Press **AUD** on the Remote Control until "SPEAKERS" in the AUDIO menu is displayed in magenta.



2 Press – or + until "SPEAKERS OFF" is displayed on the screen in magenta.

The built-in speakers will be disconnected.

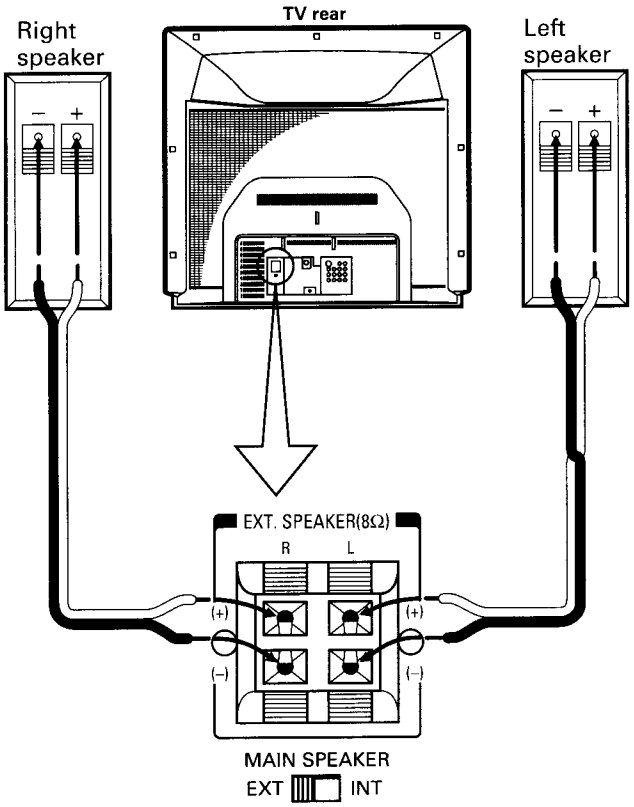


To use the built-in speakers again
Select "SPEAKERS ON" in step 2 above.

CONNECTING EXTERNAL SPEAKERS

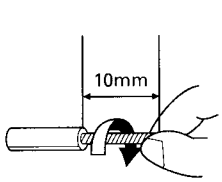
You can connect speakers to the EXTERNAL SPEAKER terminals on the TV set to enhance sound from the TV.

Before connecting the speakers, turn the TV off.

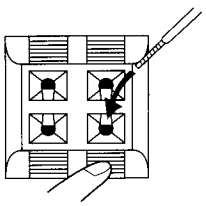


PREPARING FOR USE

1 Connect the speaker leads.
While depressing the button, insert the wire. Then, release the button.
Match the right and left channels and +/– polarities of the TV speaker terminals and external speakers.



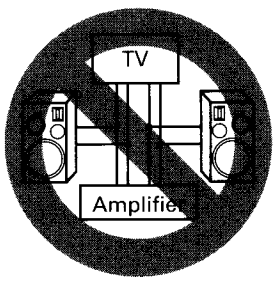
Twist wire core.



2 Set the MAIN SPEAKER switch to "EXT".
The built-in TV speakers are disconnected.

CAUTIONS:

- Do not connect external speakers to more than one audio source at a time. You will damage your equipment if you connect the same speaker system to both the TV and amplifier.



- Use only external speakers with an impedance rating of 8 ohms and input power of 10 W or greater.

CLEANING AND CARE

WARNING: TV sets use High Voltage. Do not try to remove the cabinet back. Refer servicing to qualified service personnel.

- To clean the TV screen:
  1. First remove the plug from the power outlet to avoid possible shock hazard.
  2. Use a clean cellulose sponge or chamois cloth dampened with a solution of mild detergent and warm water to clean TV screen and trim. Do not use too much water on the TV screen. Water spills into the cabinet may cause damage to the TV. Avoid excess water.
  3. Remove any extra moisture with the same cloth or a dry one.

- To maintain the finish and appearance of the cabinet, polish it from time to time with a quality furniture polish.

Note: Never use strong solvents such as thinner, benzene or other chemicals on or near cabinet, as they might damage the finish of the cabinet.

SPECIFICATIONS

TELEVISION SYSTEM:	NTSC standard
CHANNEL COVERAGE:	VHF; 2 through 13 UHF; 14 through 69 Cable TV; mid band (A-8 through A-1, A through I) super band (J through W) hyper band (AA through ZZ, AAA, BBB) ultra band (65 through 94, 100 through 125)
POWER SOURCE:	120V AC, 60Hz
POWER CONSUMPTION:	125W (average)
AUDIO POWER:	10W + 10W
SPEAKER TYPE:	Two 2-3/4"× 5" oval
VIDEO/AUDIO TERMINALS:	S-VIDEO INPUT Y-INPUT: 1Vp-p, 75 ohm, negative sync. C-INPUT: 0.286V (p-p) (burst signal), 75 ohm VIDEO 1/VIDEO 2/VIDEO 3 INPUTS VIDEO: 1V(p-p), 75 ohm, negative sync. AUDIO: 150mV (rms) (30% modulation, 47k ohm) VARIABLE: AUDIO OUTPUT 0-350mV (rms) (30% modulation, 4.7k ohm) EXTERNAL SPEAKER TERMINALS Accept speakers of impedance 8 ohm, input power 10W or greater.
DIMENSIONS:	Width 34-31/64 inches (876mm) Height 31-19/64 inches (795mm) Depth 25-35/64 inches (649mm)
MASS	170.5 lbs (77.3kg)
SUPPLIED ACCESSORIES:	Remote Control with 2 size "AA" batteries Antenna adapter

Design and specifications are subject to change without notice.

BEFORE CALLING SERVICE PERSONNEL

Before calling service personnel, please check the following chart for a possible cause of the problem you are experiencing. A minor adjustment on your part may eliminate the problem and restore your TV reception.

Symptoms	Check	Adjustments
• No picture, no sound	• Be sure power cord is plugged in. • May be station trouble. • Check antenna connections. • Check antenna for broken wires.	• Press POWER button. • Try another channel.
• No sound, picture OK	• May be station trouble. • Check if SPEAKERS ON/OFF function (page 45) or MAIN SPEAKER switch (page 46) is properly set.	• Try another channel. • Adjust VOLUME.
• Poor sound, picture OK	• May be station trouble. • Check antenna connections. • May be local interference from appliance.	• Try another channel. • Adjust VOLUME. • Adjust BASS, TREBLE, or BALANCE control. • Re-orient antenna.
• Poor picture, sound OK Snowy picture Lines in picture Distorted picture Weak picture	• May be local interference from appliance. • Check antenna connections. • Check antenna for broken wires. • May be station trouble.	• Try another channel. • Adjust BRIGHTNESS. • Adjust CONTRAST. • Adjust SHARPNESS. • Re-orient antenna.
• Poor reception of broadcast channels	• Check antenna connections. • Check antenna for broken wires. • If VCR is connected, check TV/VCR switch.	• Try another channel. • Re-orient antenna.
• No UHF, VHF OK	• Be sure TV•CABLE function (page 19) is in "TV" mode.	
• Unable to select a certain channel	• That channel may be locked out with CH LOCK function (page 34), or erased with the ADD/ERASE function (page 20).	
• Cannot get two channels in PIP	• VCR must be connected to "VIDEO 1", "VIDEO 2" or "VIDEO 3" jacks (page 29).	
• Multiple images (ghosts)	• May be station trouble. • Check antenna connections.	• Try another channel. • Re-orient antenna.
• Poor color or No color	• May be station trouble. • Check antenna connections. • Check antenna for broken wires. • May be local interference from appliance. • Check if station is broadcasting in color. • If you change the direction of the TV while the TV is activated, the picture may suffer from color shading. If so, turn off the TV and allow for about 30 minutes to cool, then turn on the TV again. The picture should improve.	• Try another channel. • Re-orient antenna. • Adjust TINT. • Adjust COLOR.
• No stereo or SAP sound from a known MTS broadcast	• Check if MTS button is properly set.	
• Remote Control does not work	• Check if TV-CABLE-VCR switch is properly set. • Be sure power cord is plugged in. • Check battery in Remote Control.	• Change batteries.

LIMITED WARRANTY

Toshiba America Consumer Products,Inc. ("TACP") and Toshiba Hawaii Inc. ("THI") make the following limited warranties. These limited warranties extend to the original consumer purchaser or any person receiving this set as a gift from the original consumer purchaser and to no other purchaser or transferee.

Limited One (1) Year Warranty
TACP and THI warrant this product and its parts against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. During this period, TACP and THI will repair a defective product or part, without charge to you. Authorized TACP/THI service station personnel will come to you home when warranty services required. Depending on the type of repair required, the service will either be performed in your home or the set will be taken to the authorized TACP/THI service station for repair and returned to your home at no cost to you.

Limited Two (2) Year Warranty of Picture Tube
TACP and THI further warrant the picture tube in this product against defects in materials or workmanship for a period of two (2) years after the date of original retail purchase. During this period, TACP and THI will replace a defective picture tube without charge to you, except that if a defective picture tube is replaced after one (1) year from the date of the original retail purchase, you pay labor charges involved in the replacement.

Owner's Manual and Registration Card
You should read this owner's manual thoroughly before operating this product. You should also insure that your name and address are on file as owner of a TACP/THI product by completing and mailing the enclosed registration card within ten days after you, or the person who has given you this product as a gift, purchased this product. This is one way to enable TACP/THI to provide you with better customer service and improved products. Failure to return the card will not affect your rights under this warranty so long as you retain other proof of purchase such as a bill of sale.

Your Responsibility
The above warranties are subject to the following conditions:
(1) You must retain your bill of sale or provide other proof of purchase.
(2) All warranty servicing of this product must be made by an Authorized TACP/THI Service Station.
(3) These warranties are effective only if the product is purchased and operated in the U.S.A.
(4) Labor service charges for set installation, set up, adjustment of customer controls and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems are your responsibility.
(5) Warranties extend only to defects in materials or workmanship as limited above and do not extend to any product or parts which have been lost or discarded by you or to damage to products or parts caused by misuse, accident, improper installation, improper maintenance or use in violation of instructions furnished by us; or to units which have been altered or modified without authorization of TACP/THI or to damage to products or parts there of which have had the the serial number removed, altered, defaced or rendered illegible.

Step-By-Step Procedures-How to Obtain Warranty Service

If, after following all of the operating instructions in this manual and checking the section "BEFORE CALLING SERVICE PERSONNEL", you find that service is needed:
(1) Contact one of the TACP/THI Service Centers listed below for warranty service or call the TACP toll free number **800-631-3811** within thirty (30) days after you find a defective product or part to find the nearest TOSHIBA Authorized Service Station or authorized TOSHIBA Dealer.
(2) Please present your bill of sale or other proof to the Authorized Service Station. "Authorized TACP/THI service station personnel will come to you home when warranty services required. Depending on the type of repair required, the service will either be performed in your home or the set will be taken to the authorized TACP/THI service station for repair and returned to your home at no cost to you."
(3) If you have any question about service, please contact one of the following TACP/THI Service Centers:

IN THE CONTINENTAL UNITED STATES
Should your unit require service, Call

NORTHEAST	MIDWEST	WEST	SOUTHEAST	SOUTHWEST	HAWAII
82 Totowa Road,	1010 Johnson Drive,	5490 E.Francis St.,	6115 Jimmy Carter Blvd.,	1421 Champion Drive,	327 Kamakee Street,
Wayne,	Buffalo Grove,	Ontario,	Suite C2, Norcross,	Suite 304,Carrollton,	Honolulu,
New Jersey 07470	Illinois 60089-6900	California 91761	Georgia 30071-4607	Texas 75006	Hawaii 96814

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NO EVENT SHALL TACP OR THI BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation may mot apply to you.

No person, agent, distributor, dealer, service station or company is authorized to change, modify or extend the terms of these warranties in any manner whatsoever. The time within which an action must be commenced to enforce any obligation of TACP and THI arising under this warranty or under any statute, or law of the United States or any state thereof, is hereby limited to one year from the date you discover or should have discovered, the defect. This limitation does not apply to implied warranties arising under state law. Some states do not permit limitation of the time within which you may bring an action beyond the limits provided by state law so the above provision may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

TOSHIBA AMERICA CONSUMER PRODUCTS, INC.

HEAD OFFICE/82 TOTOWA ROAD, WAYNE, NEW JERSEY 07470
FACTORY SERVICE CENTERS/NORTHEAST: 82 TOTOWA ROAD, WAYNE, NEW JERSEY 07470
MIDWEST: 1010 JOHNSON DRIVE, BUFFALO GROVE, ILLINOIS 60089-6900
WEST: 5490 E. FRANCIS ST., ONTARIO, CALIFORNIA 91761
SOUTHWEST: 1421 CHAMPION DRIVE, SUITE 304 CARROLLTON, TEXAS 75006
SOUTHEAST: 6115 JIMMY CARTER BLVD., SUITE C2, NORCROSS, GEORGIA 30071-4607

TOSHIBA HAWAII, INC.

HEAD OFFICE/327 KAMAKEE STREET, HONOLULU, HAWAII 96814,U.S.A. PHONE: (808)521-5377

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